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A 34-year sequential study of psychosocial development in adulthood.

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A 34-YEAR SEQUENTIAL STUDY OF PSYCHOSOCIAL DEVELOPMENT IN ADULTHOOD

A Dissertation Presented

by

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DEDICATION

Offered at the lotus feet of all the teachers who have graced my life.

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ABSTRACT

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The stability and change of adult personality is one of the most enduring questions in psychology. This study utilized longitudinal data on three cohorts of men and women spanning 34 years to examine Erikson's (1963) eight-stage theory of personality using the Inventory of Psychosocial Development (IPD), an 80-item Likert-type self-report measure. Cohort 1 ($\underline{N}$ = 106) was first tested in 1966 at age 20 and has been re-tested in 1977, 1988, and 2000 at the ages of 31, 42, and 54, respectively. Cohort 2 ($\underline{N}$ = 73) was first tested in 1977 at age 20 and has been re-tested in 1988 and 2000 at the ages of 31 and 42, respectively. Cohort 3 ($\underline{N}$ = 55) was first tested in 1988 at age 20 and has been re-tested in 2000 at age 31. Joining a substantial body of trait personality research, mean-level and rank-order stability estimates suggest personality goes through significant age-related changes in the decade of the 20s, fewer changes in the decade of 30s, and virtually no change in the decade of the 40s, providing convincing evidence that personality stabilizes in middle adulthood. It is concluded that researchers should transcend the historically polarized stability <u>versus</u> change debate to examine the stability <u>and</u> change of adult personality.

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CHAPTER I

REVIEW OF THE LITERATURE

Introduction

Over a century ago, William James (1890) proclaimed, "In most of us, by the age of thirty, the character has set like plaster, and will never soften again" (p. 126). In the ensuing decades, personality researchers have debated whether personality remains stable or changes in adulthood. On the one hand, trait personality theorists argue that personality is basically a set of stable and enduring dispositions that remain stable throughout the life span. On the other hand, adult developmental psychologists citing the stage models of Erikson (1963) and Loevinger (1976) argue that personality changes predictably over the life course and that the interaction of personality and environment is critical in that development.

James' proposition raises two questions. The first question asks whether or not personality in adulthood is stable. The second question asks when in adulthood personality becomes stable. Consistent with James, Costa and McCrae (1994; 1997) concluded that research on the Five Factor model supports the proposition that personality development stops at age 30. According to these researchers, cross-sectional studies yield impressively consistent results: young adults score slightly higher than middle age adults do on Neuroticism (worry), Extraversion (social interaction), and Openness to Experience (desire for novelty), and slightly lower than middle age adults on Conscientiousness (achievement striving) and Agreeableness (nurturance).

However, this view seems to be changing. McCrae, et al. (1999) examined mean-level stability of the "Big Five in a cross-cultural study of over 7,000 participants in four distinct age groups (i.e., 18-21, 22-29, 30-49, and 50+) from Germany, Italy, Portugal, Croatia, and South Korea. Consistent with previous findings, older adults were lower on Extraversion and Openness to Experience and higher on Agreeableness and Conscientiousness than young adult samples. Also, consistent with previous research, Neuroticism was generally higher in young adults than it was in older adults. Thus, middle age adults in these cross-cultural samples were more nurturing, hard working, and less emotionally volatile, out going, and curious than their younger counterparts. McCrae and his colleagues concluded that these cross-cultural maturational changes in adult personality indicate a universal trend toward psychosocial maturity over the life span. They further concluded that these cross-sectional differences probably reflect "slow maturational processes continuing after age 30 (McCrae et al., 1999, p .475)."

Recent cross-cultural research has paralleled these findings (Labouvie-Vief, Diehl, Tarnowski, & Shen, 2000). In this study, California Personality Inventory scores were compared in cross-sectional samples of adults from the United States (N = 285) and the People's Republic of China (N = 450) ranging in age from 20 to 87. Older adults were scored higher on CPI scales related to Conscientious and Agreeableness and lower on CPI scales related to extraversion. Importantly, these authors observed that instead of personality development stopping at age 30, "age differences continue to hold across the adult life span and into late life" (Labouvie-Vief et al., 2000, p. P14). These results suggest continued personality development across the adult life span across cultures.

Roberts and DelVecchio (2000) conducted an extensive quantitative review to examine the hypothesis that adult personality stabilizes at age 50. These researchers examined rank-order consistency (i.e., the relative placement of individuals within a group) in 152 studies based on 124 samples consisting of 54,180 participants. This procedure yielded 3, 217 rank-order consistency coefficients. Results were consistent with the age 50 hypothesis showing substantial change well into middle adulthood. Specifically, test-retest correlations increased from childhood (.31) to college age (.54) and again from college age to age 30 (.64). They further increases in rank-order consistency from .64 at age 30 to .75 between the ages of 50 and 70. Although these findings do not support the "age 30 hypothesis," they do support the alternative age 50 hypothesis. However, given that rank-order consistency estimates increased with age but did not reach unity suggests there is considerable room for personality change in adulthood.

The Psychosocial Maturity Hypothesis

In contrast to the stability view, Erikson (1963) postulated that personality changes predictably over the life span according to a set of eight bipolar psychosocial crises (see Figure 1; Appendix B). Complimentary pairs of positive and negative ego qualities characterize the crisis stages, which are determined conjointly by biological, psychological, and sociocultural forces. The successful resolution of each crisis stage is associated with the development of a basic ego strength. As the crises are successfully resolved, these strengths accumulate and are continuously integrated into personality. This allows the individual to undertake upcoming crises with greater resolve. For example, successful resolution of Stage 1 (trust versus mistrust) results in the development of hope, which paves the way for the infant to take on the challenges associated with Stage 2 (autonomy versus shame and doubt). Conversely, unsuccessful resolution of Stage 1 results in withdrawal.

In Erikson's theory, the successful resolution of earlier crises provides the foundation for successful resolution of later crises, a process he referred to as the epigenetic unfolding of personality. However, it would be a mistake to interpret Erikson's postulate of epigenetic development as a strictly unidirectional path. Erikson believed that all of the empty boxes that form the epigenetic matrix must be thought through while keeping in mind "the total configuration of stages" (Erikson, 1963, p. 272). The total configuration or overall positive developmental progression is referred to here as psychosocial maturity, while the analysis of the "empty" boxes refers to the idea that the psychosocial crisis stages are never completely resolved. Instead, these crises are continually revisited throughout life and subject to influence from changing environmental conditions. It is also the case that each of the psychosocial crises can reach ascendancy at any time in adulthood depending on the "hazards of existence" (Erikson, 1963, p.274). That is, earlier stages can ascend in later life and later stages arise in early adulthood depending on the biopsychosocial forces at work.

Stability in adult personality is expected from trait personality research because traits are by definition stable and the measures used to assess trait dimensions are biased toward stability (Helson & Stewart, 1994). Research that is theoretically guided by Erikson's model, however, might be better able to detect personality change in adulthood. Utilizing a cohort-sequential design (Baltes, 1968; Schaie, 1965), which combines the benefits of both longitudinal and cross-sectional research, Whitbourne and her colleagues (Whitbourne & Waterman, 1979; Whitbourne, Zuschlag, Elliot, & Waterman, 1992) have conducted the most direct and extensive test of Erikson's 8-stage theory. These studies are based on Constantinople's (1969) original investigation in which she developed the Inventory of Psychosocial Development (IPD), a Likert-type self-report measure of Stages 1-6. Making both cross-sectional and longitudinal comparisons of college students at the University of Rochester, Constantinople observed that seniors showed greater crisis resolution than freshman, and greater psychosocial crisis resolution of stages 4, 5, and 6 was associated with progression through college. Constantinople also observed that men showed a clearer pattern of increasing psychosocial maturity as their scores increasingly significantly on the positive resolution of Stages 4 and 5 from freshman to senior year, whereas women's scores did not. However, women initially scored higher than men did on Stages 4, 5, and 6 as freshman in college; there were no differences between men and women after 4-years of college.

Whitbourne and Waterman (1979) conducted a 10-year follow-up (1966-1977) of these data utilizing a partial sequential design in an effort to control for the inherent confounds of both time of testing and cohort in longitudinal and cross-sectional research, respectively. Participants originally tested in 1966 (Cohort 1) were re-tested in a ten-year follow-up. At the same time, a new sample of undergraduates attending college in 1977 were also tested (Cohort 2). Again, the findings obtained in this study were consistent with Erikson's theory. Specifically, significant increases were observed between the 1966 and 1977 testing for Cohort 1 on Stages 4, 5, and 6. A significant cross-sectional difference was observed between Cohort 1 and Cohort 2 on Stage 4, and trends were observed in the same direction for Stages 5 and 6. Time lag comparisons revealed that Cohort 2 college students scored higher on Stage 4 than Cohort 1 participants when they were in college. There were also differential patterns of psychosocial crisis resolution between the men and women of Cohorts 1 and 2. Cohort 1 women scored lower overall between the men and women of Cohorts 1 and 2. Cohort 1 women scored lower overall than Cohort 1 men in 1966 and Cohort 2 women scored higher overall than Cohort 2 men in 1977.

Whitbourne et al. (1992) conducted a 22-year follow-up study utilizing a full cohort-sequential strategy as data were collected on three cohorts of men and women in 1966, 1977, and 1988. For the first time, data were presented on the last two stages of the IPD as these were added to the original measure in the 1977 testing. Cohorts 1 and 2 showed evidence of increased psychosocial resolution for Stages 1, 5, and 6, which suggested that ontogenetic developmental trends, rather than environmental influence, were responsible for these changes. Parallel increases in Stage 4 resolution were also observed for Cohorts 1 and 2 between the ages of 20 and 31, which again suggests age-related change. However, this finding is complicated by the fact that Cohort 1 had unusually low Stage 4 scores in 1966. Cohort 1 also showed increases on Stages 2 and 3, and decreases on Stage 8. Because these changes were not observed in Cohort 2, it can be inferred that they are confounded by the influence of time of testing. Whitbourne, et al. also observed gender differences in the 1988 cross-sectional analysis and in the age 20 and age 31 time lag analyses. All gender effects favored women. Overall, this line of research utilizing a cohort-sequential design and a theoretically guided measure provides consistent evidence for age-related increases in psychosocial resolution.

The present investigation was a 34-year sequential follow-up of Constantinople's (1969) original investigation and expands on previous work by extending the age range for which there are overlapping periods of testing. Longitudinal data were available for (a) the 20-31 year old age range for all three cohorts, (b) the 31-42 year old age range for

Cohorts 1 and 2, and (c) Cohort 1from 42-54 years of age. Members of Cohort 1 who originally participated as undergraduates in the 1960s were tested on four separate occasions, 1966, 1977, 1988, and 2000, and were approximately 54 years old in the 2000 testing. Members of Cohort 2 who participated as undergraduates in the 1970s were tested on three separate occasions, 1977, 1988, and 2000, and were approximately 42 years old in the 2000 testing. Members of Cohort 3 who were first tested in the 1988 follow-up were approximately 31 in the 2000 follow-up.

The Psychosocial Maturity Hypothesis: Additional Support

Using a cohort-sequential design and a theoretically derived measure of Erikson's eight-stage theory, Whitbourne and her colleagues have provided strong empirical support for age-related ontogenetic personality development in adulthood. Research investigating the development of other dimensions of personality in adulthood, such as emotion regulation, defense mechanisms, and coping, provides additional support for the psychosocial maturity hypothesis.

According to Erikson's principle of epigenesis, successful resolution of earlier crises sets the stage for successful resolution of later crises. Nowhere is the relationship more closely linked then between identity resolution and generativity. Presumably, those who have successfully achieved an integrated identity in young adulthood will be more able to care for the next generation at midlife when generative strivings become most salient. Consistent with this postulate, identity development in young adulthood has been found to predict midlife generativity, which in turn predicts life satisfaction and self-esteem in a longitudinal study of college educated women (de Haan & MacDermid, 1995). Similarly, generativity correlates highly with well-being in individuals with articulated ego structures, which is indicative of ego identity crisis resolution (de St. Aubin & McAdams, 1995).

Vandewater, Ostrove, and Stewart (1997) have also studied the extent to which identity resolution in early adulthood predicts increased generativity and well-being in middle adulthood. Consistent with Erikson's theory, an integrated sense of self (identity development) and generative capacity were considered integral components of well-being; social role involvement was considered to express, as well as facilitate, identity achievement and midlife generativity in these samples. As predicted, engaging in multiple roles at the age of 28 was predictive of increased identity resolution in midlife (age 43 and 47 in the two samples). In addition, identity achievement predicted midlife generativity in the late forties, which significantly predicted psychological well-being in both samples. This explicit support of Erikson's principle of epigenesis is significant because, while the Radcliffe longitudinal sample is homogeneous with respect to socioeconomic status, the Michigan longitudinal sample is relatively diverse. Thus, identity is related to well-being, and generativity resolution is dependent on earlier identity development, findings which clearly support the psychosocial maturity hypothesis.

According to Vaillant (1977), the ability to cope and defend against emotionally sensitive and psychologically threatening information is a hallmark of psychological maturity. Vaillant proposed a hierarchical model of defense mechanisms in which immature defenses such as denial predominate in early life and more mature mechanisms, such as humor and altruism, come to the fore in later life. Similarly, Haan

(1977) proposed that the use of coping strategies that involve cognitive mediation and mature emotional expression increase with age whereas defensive processes that lack conscious cognitive mediation and distort reality decrease with age. Both the Vaillant and Haan models have received considerable empirical support in investigations of defense mechanisms in later adulthood. For example, it has been found that older adults score lower on immature coping and defensive strategies and higher on more mature strategies than younger adults (Diehl, Coyle, & Labouvie-Vief, 1996). Clearly, older adults have the ability to handle negative emotions in a more productive and positive manner than do their younger counterparts. This ability allows them to engage in extensive "damage control" when exposed to potentially negative emotional interchanges in which they are made to feel weak, inferior, or rejected.

Negative affect (NA) is defined as the dispositional tendency to experience negative or aversive emotional states including fear, anxiety, hostility, scorn, and anger (Watson & Clark, 1984). The absence of these aversive emotional states is what is meant by the term well-being, which Erikson intimately linked with the development of personality in adulthood. Consistent with this view, several studies have documented decreases in NA over the life span and corresponding increases in the experience of positive affect (Helson & Klohnen, 1998; Jones & Meredith, 2000; Mroczek & Kolarz, 1998). Most recently, Jones and Meredith (2000) assessed interindividual differences in intraindividual change in 236 men and women from three distinct longitudinal samples. Using a clinician-rated index of psychological health, life span trajectories of subsamples of individuals at 14, 18, 30, 40, 50, and 62 years of age were modeled using latent curve analysis. The PHI was constructed by having experienced clinicians generate Q-sort profiles of the 'ideally psychologically healthy' individual. Surprisingly, adolescent trajectories of psychological health remained constant between the ages of 14 and 18. More importantly, psychological health steadily increased across the years from 30 to 62 years of age.

Levels of affectivity and defensive profiles have been shown to undergo developmental changes across the life cycle. Presumably, it is the ego that is responsible for these changes, because it is the function of the ego to adapt flexibly and resourcefully to internal and external psychological pressures (Klohnen, 1996). Because life span developmental changes in emotionality and defenses have been documented empirically, it should be expected that the organizer and interpreter of life's experiences change as well. Loevinger (1976) formulated a model of ego development in which individuals move from less mature levels of functioning (e.g., impulsive, self-protective, ritual-traditional, and conformist) to more mature levels of functioning (e.g., self-aware, conscientious, individualistic, autonomous, and integrated) with increasing age. According to her model, increasing ego development is associated with greater (a) respect for individual autonomy, (a) appreciation of the give and take of interpersonal relationships, (c) internalization of rules governing social relationship, (d) cognitive complexity, and (e) impulse control.

Helson and Roberts (1994) examined the relationship between ego development and California Personality Inventory (CPI) profiles both retrospectively and prospectively in a longitudinal sample of women ($\underline{N} = 90$). Participants at the age of 43 were classified into three ego levels (i.e., self-aware and below, conscientious, and individualistic and above) and their profiles were compared with CPI profiles gathered at the ages of 21, 43, and 52. Ego development was evident across the specified time periods in ways consistent with Loevinger's theory. Women who were medium to high in ego level (e.g., either conscientious or individualistic and beyond) at the age of 43, increased in predictable ways on the tolerance, achievement via independence, and psychological mindedness dimensions of the CPI. Thus, the ego shows developmental change in adulthood that is consistent with the psychosocial maturity hypothesis.

McAdams (1994) maintained that trait personality research is less likely to detect personality change than qualitative research because traits are abstractions from real world living; that is, they are not contingent on life experiences. Thus, research investigating the influences of sociocultural conditions on personality development should also support the psychosocial maturity hypothesis. Helson, Stewart, and Ostrove (1995) examined the development of ego identity, the dimension of personality that describes the individual's relationship to society, across different sociohistorical periods in three distinct longitudinal samples of midlife women who were young adults in the 50s, early 60s, and late 60s. The authors conceptualized the Achievement-Diffuse identity status dimension as a continuum ranging from integrated to unintegrated, and the Moratorium-Foreclosure identity status dimension as a continuum ranging from search to acceptance. Identity patterns clearly showed differential relations to work and family across cohorts, which is indicative of sociocultural influence. Specifically, identity acceptors were more likely to be in stable marriages and have children at midlife and identity searchers were more likely to be divorced, or never married, and have higher status occupations. Furthermore, Helson and her colleagues observed that integrated acceptors (i.e., the carriers of the tradition) were more alike across samples than integrated searchers (i.e., the carriers of change) indicating that the changing social climate allowed identity searchers the opportunity to explore. Thus, changing social context affects personality development.

The Present Study

The present study focused on four interrelated issues. First, the present analysis was interested in whether or not personality changes or remains stable in adulthood. To assess stability and change in adulthood, mean-level and rank-order consistency coefficients were used. Mean-level stability assesses the degree to which groups of individuals' scores increase or decrease over time. If adult personality remains stable, than stability rather than change should be reflected in mean stage scores on the IPD over time. However, if personality changes in adulthood, then mean scores should change from one testing to the next. Rank-order consistency refers to the degree individuals in a group maintain their rank ordering of scores over time. If personality remains stable in adulthood, then the median stability coefficient for a given time interval should vary around a magnitude of .65 (Costa & McCrae, 1994). If personality changes over time, then test-retest correlations for a given time interval should be substantially lower. It was expected that both mean-level and rank-order indices would reflect personality change in adulthood rather than stability.

Second, this study was interested in assessing the extent to which personality change, if detected, is consistent with Erikson's theory and indicative of psychosocial maturity. According to Erikson's theory, Stages 5, 6, and 7 are most salient in adulthood. The resolution of the identity versus identity diffusion crisis marks the beginning of adulthood, concerns associated with intimacy and isolation ascend in the 30s, and themes associated with generativity versus stagnation come to the fore in the 40s and 50s. However, personality development is not as neat as stage models depict. Although more significant change was expected in later as opposed to earlier stages, change in earlier stages was not unexpected. In particular, it was expected that Cohort 3 would show significant change on early crisis stages as Cohorts 1 and 2 had during the age range. Cross-sectionally, it was expected that Cohort 1 would score higher than Cohort 2 or 3 would, and Cohort 2 would score higher than Cohort 3 would on the individual IPD stages. Because Erikson placed the generativity crisis squarely in middle adulthood, it was also expected that Cohort 1's generativity scores at age 54 (2000) would be significantly higher than its generativity scores at age 42 (1988).

Third, this study focused on determining the extent to which personality change is age-related or the result of environmental influence or sociohistorical circumstance. Using a cross-sequential design on all cohorts' IPD scores from 1988 and 2000, we explored the possibility that different cohorts responded differently to the sociocultural events of the 1990s. Whitbourne, et al (1992) observed a "precipitous decline" (p. 269) on Stage 8 (ego integrity versus despair) scores from 1977 to 1988 in Cohorts 1 and 2 and surmised that this trend reflected general erosion of philosophical values in conjunction with the rise in materialism during the 1980s. Given the possibility that these declines reflected environmental influences, it was expected that ego integrity scores would increase in Cohort's 1 and 2 because of the economic growth enjoyed by these cohorts during this time period.

Using cohort-sequential designs, this study also assessed the extent to which changes on the IPD over time reflect true maturation or the impact of environmental influence. If the same general pattern of change or stability is reflected in the means of two or more cohorts tested over non-overlapping time periods, it can be more confidently concluded that the change observed is the result aging rather than environmental influence. However, if different patterns emerge between cohorts, then socio-historical influence is suspected. It was expected that Cohort 3 would show increases from 1988 (20 years old) to 2000 (32 years old) on Stages 4, 5, and 6 that are similar to the increases observed on these stages for Cohorts 1 and 2 over the same age range. It was also expected that the increases observed for Cohort 1 between the ages of 31 and 42 on Stage 2 (autonomy vs. shame and doubt) and Stage 3 (initiative vs. guilt) would not be replicated in Cohort 2 over the same age range suggesting the influence of environmental influence.

Fourth, this investigation investigated whether psychosocial development is different for men and women. As opposed to longitudinal studies conducted exclusively on women (Helson & Roberts, 1994; Helson et al., 1995; Vandewater et al., 1997), the present study consisted of three cohorts of men and women tested over non-overlapping time periods making it possible to examine gender differences in psychosocial development. Although gender differences have been documented in both follow-up studies using the IPD (Whitbourne & Waterman, 1979; Whitbourne et al., 1992), as well as Constantinople's (1969) original investigation, these differences have not been large. As a result, it was predicted that the few gender effects observed would show women scoring higher than men on the IPD.

CHAPTER II

RESEARCH METHODOLOGY

Method

Design

The effects of age, cohort, and time of testing are confounded in conventional analyses of developmental processes. In traditional longitudinal designs, age is varied while cohort is held constant leaving confounded the influence of time of testing. In conventional cross-sectional designs, age and cohort are varied leaving these two components inextricably confounded. In the time lag design, cohort is varied while age is held constant, which does not account for the effect of cohort and time of measurement. As a result, the present study uses hyphenated terminology to indicate confounds associated with the independent variables of these analyses. Age-time refers to the time of measurement confound associated with determining age-related change in longitudinal analyses. Age-cohort refers to the cohort confound associated with determining cross-sectional differences. Time-age refers to the confound of time of testing and age in the cross-sequential Cohort-time refers to both cohort and time of testing confounds associated with time lag comparisons, which aim to determine whether differences exist between cohorts at a given age.

In addition to using conventional designs to examine age, cohort, and time of testing effects, the design of the present study (see Figure 2; Appendix B) uses two components of Schaie's (1965) "most efficient design" (p. 107): the cross-sequential and cohort-sequential. The cohort-sequential and cross-sequential designs provide greater validity than single-time of testing or within cohort tests because they allow for replication across time and cohort. That is, if similar age differences in a cohort-sequential analysis are observed for two or more cohorts then it can be more confidently concluded that these age differences reflect true age effects. Similarly, if cohort differences are observed at two or more time of testing than it can be more confidently concluded that the measure of choice is sensitive to environmental differences particular to time of birth (Whitbourne, 2001).

The cross-sequential design contrasts cohort effects against time of measurement effects and the cohort-sequential design contrasts cohort effects against age effects. The two main effects in the cross-sequential analysis are cohort-time and time of measurement-age. The two main effects in the cohort-sequential analyses are age-time and cohort-time. Significant interactions in the cross-sequential and cohort-sequential permits the relative separation of age, cohort, and time of testing effects. Table 1 (Appendix A) summarizes the multivariate analysis of variance (MANOVA) comparisons of age, cohort, and time of testing. In all MANOVA tests, gender was included as an independent variable. The IPD was the dependent variable in all analyses. Only Stages 1-6 are used in analyses involving Cohort 1's college scores as Stages 7 and 8 were added beginning with the 1977 follow-up.

Participants

Figure 2 presents the overall design of the present study with total sample sizes for each cohort at each time of testing. University of Rochester Alumni are classified into three cohorts based on year of original testing (i.e., 1966-68, 1977-78, or 1988-89). To ease the presentation of results from the present study, time of testing has been rounded off to 1966, 1977, 1988, and 2000. Data collection, however, may have preceded or extended slightly beyond a given year of testing. Age was rounded off to 20, 31, 42, and 54, although the mean age for each cohort varied slightly around the chosen age values. Cohort 1 respondents ranged in age from 52 to 56 (M = 54.25, SD = 1.07), Cohort 2 respondents ranged in age from 41 to 46 (M= 43.38, SD = 1.31), Cohort 3 respondents ranged in age from 29 to 42 (M = 31.93, SD = 2.09). The greater standard deviation for Cohort 2 as compared to Cohorts 1 and 3 was due to two respondents, age 38 and 42, respectively.

Cohort 1 originally consisted of 347 participants, 180 men (51.8%) and 166 women 947.8%). In 1977, 155 participants, 79 men (50.9%) and 77 women (49.6%), completed testing representing 52% of the original sample. In 1988, 99 participants were successfully followed, 62 men (62.6%) and 37 women (37.3%). All 99 participants from the 1988 follow-up had participated in the 1977 follow-up. In the 2000 follow-up, 105 completed testing, 59 men (65.2%) and 46 women (43.8%). Of these 105 follow-up participants, 53 (50.4%) completed all four IPD testings (1966, 1977, 1988, & 2000), 14 (13.3%) completed the 1977 and 2000 testings but not the 1988 follow-up, and 38 (36.2%) missed the 1977 and 1988 follow-ups but participated in the 2000 testing.

Cohort 2 originally consisted of 298 participants. However, because the University of Rochester changed its record keeping system during the interval between 1977 and 1988, many participants were not located in the1988 testing. As a result, only 83 (27%) were successfully followed, 42 men (50.6%) and 40 women (48.2%). In the 2000 testing, 73 participants, 27 men (36.9%) and 46 women (63%), were successfully followed representing 24.4% of the original sample. Of these 73 participants, 30 completed both the 1988 and 2000 follow-ups, and 43 missed the 1988 follow-up but participated in the 2000 testing.

Cohort 3 was first tested in 1988 and consisted of 292 undergraduate participants, 181 men (61.9%) and 111 women (38%). In the 2000 follow-up, 55 participants completed the testing representing 18.8% of the original college sample. Of these 55 participants, 34 were men (61.8%) and 21 were women (38.1%).

Attrition effects were examined for all three cohorts using two-way gender × attrition status MANOVAs with IPD stage scores as the dependent variable. Cohort 1 participants in the 2000 follow-up were classified into one of six attrition groups. These groups were comprised of individuals who participated in a) all four testings, b) 1977 and 2000, c) 1977 and 1988, d) 2000 only, e) 1977 only, and f) none of the follow-up testings. No multivariate main effects for attrition status or interactions between attrition status and gender were observed on Cohort 1's college scores, 1977 scores, or 1988 scores. Cohort 2 participants in the 2000 follow-up were classified into one of four attrition groups. These Cohort 2 attrition groups were comprised of individuals who participated in a) all three testings, b) 2000 but not 1988, c) 1988 but not 2000, and d) neither 1988 nor 2000. No multivariate main effects for attrition status or interactions between attrition status and gender were observed on Cohort 2's college scores (1977) or 1988 follow-up scores. Cohort 3 participants in the 2000 testing were classified into two groups: Participants who completed the follow-up testing and participants who did not. Based on these groupings, no multivariate main effects for attrition status or interactions between attrition status and gender were observed on Cohort 3's college scores (1988). As a result, attrition does not appear to be a significant factor in the current study.

Measure

Inventory of Psychosocial Development (Constantinople, 1969; Whitbourne et al., 1992). The 80-item Inventory of Psychosocial Development (IPD) is a measure of Erikson's (1963) eight-stage theory of psychosocial development. Constantinople (1969) developed the first six subscales in cross-sectional and longitudinal studies of University of Rochester students in the mid 1960s; Stages 7 and 8 were developed in subsequent research and described in Walaskay, Whitbourne, and Nehrke (1983-1984). The IPD yields eight stage scores with 5 positive items and 5 negative items contributing to each score. Respondents are asked to indicate how characteristic or uncharacteristic a given item is of them on a 7-point Likert-type scale. For example, a representative basic trust item is, "Deep unshakeable faith in myself" and a representative basic mistrust item is, "Pessimistic, little hope," and respondents are asked to rate how characteristic or uncharacteristic these items are of them. Difference sores are obtained for each stage score by subtracting the summed score of the negative items from the summed scores of the positive items. For each stage, the range of possible scores is from –30 to +30.

Reliability coefficients for the IPD for Cohort 1 in the 2000 testing were: Stage 1, .82, Stage 2, .44, Stage 3, .73, Stage 4, .82, Stage 5, .72, Stage 6, .74, Stage 7, .52, and Stage 8, .78. Internal consistency estimates for the IPD for Cohort 2 in the 2000 testing were: Stage 1, .76, Stage 2, .25, Stage 3, .71, Stage 4, .81, Stage 5, .71, Stage 6, .72, Stage 7, .37, and Stage 8, .75. Reliability estimates for the eight IPD stages for Cohort 3 in the 2000 testing were: Stage 1, .74, Stage 2, .40, Stage 3, .69, Stage 4, .79, Stage 5, .52, Stage 6, .62, Stage 7, .49, and Stage 8, .71. As can be seen from these data, Cronbach's alpha was lowest for Stages 2 and 7 for all cohorts, which is consistent with past research (Walaskay et al., 1983-1984; Waterman & Whitbourne, 1981).

Procedure

In the summer of 2000, a questionnaire packet containing informed consent, a demographics page, the IPD, a debriefing form, and several other short measures not reported in this study was compiled. After an initial preparatory phase in which addresses were compiled for all study participants (see below), questionnaire packets were sent to each address obtained. Cover letters were included that reminded participants of the importance of their responses and their previous participation in earlier studies. This letter was not personally signed but mass reproduced. Questionnaires were folded and mailed in University of Massachusetts Department of Psychology business envelopes with computer printed address labels affixed to both the envelope and the questionnaire for identification purposes. A business reply return envelope was included for the convenience of the respondents. Approximately one month after the initial questionnaire was mailed, a follow-up questionnaire was mailed to nonrespondents urging them to complete and return their packets.

Cohort 1's address information from the 1988 follow-up was updated to its most current status using the University of Rochester alumni directory. Of the 347 Cohort 1 participants, 264 were listed in the directory and 82 were not. For participants who were not listed in the directory, questionnaire packets were sent to addresses based on 1988 follow-up information. Of the 264 participants for whom we had most recent address information, 101 returned questionnaires representing 96% of Cohort 1 respondents. Of information, 101 returned questionnaires representing 96% of Cohort 1 respondents. Of the 82 participants for whom we did not have updated address information, 4 returned questionnaires (3.8%).

Between the 1977 testing and 1988 follow-up, the University of Rochester changed its record keeping system, which resulted in a loss of 215 Cohort 2 participants in the 1988 follow-up. In the 2000 follow-up, address information was updated for 193 Cohort 2 participants using the University of Rochester alumni directory. Of these 193 participants, 56 returned questionnaires representing 76.7% of Cohort 2 respondents. To improve return rate for Cohort 2 participants, an internet service was used to locate study participants by social security number. Current addresses for 70 Cohort 2 participants were obtained using this method. Of these 70 participants, 14 returned questionnaires, which represents 19.2% of Cohort 2 respondents overall. Neither current nor 1988 address information was available for 24 people in Cohort 2. Because a variety of sources were available to obtain updated address information in the 2000 testing, completed questionnaires were received from 43 Cohort 2 participants who had been lost in the 1988 follow-up.

For Cohort 3, current address information was obtained through the University of Rochester alumni directory for 187 participants. Current addresses for 74 Cohort 3 participants were also obtained using social security number. Current address information and 1988 college address information was not available for 31 Cohort 3 participants. Of the 188 Cohort participants for whom we obtained current address information from the University of Rochester alumni directory, 15 returned questionnaires, which represents 28.8% of all Cohort 3 respondents. Of the 75 participants for whom we obtained current address information by social security number, 19 returned questionnaires, which represents 36.5% of all Cohort 3 respondents. Current e-mail information for 63 Cohorts 3 participants was also obtained using the University of Rochester's on-line student and alumni directory. These were individuals who did not return questionnaires based on the address information we obtained through the University of Rochester directory or the internet service using social security numbers. Based on this search, 21 participants returned questionnaires after they had been solicited by e-mail representing 36.4% of Cohort 3 2000 testing respondents. One individual refused to participate.

CHAPTER III

STATISTICAL ANALYSES

Results

Findings from the present study will be presented in two main sections. In the first section are results from the multivariate analyses. In the second section, univariate inferential statistics for each significant multivariate effect are presented by stage. The independent variables (IV) in the multivariate and univariate analyses are (a) age-time, (b) age-cohort, (c) cohort-time, (d) time-age, and (e) gender. The dependent variable is the IPD in all analyses. Multivariate and univariate main effects and interactions are reported if they were significant at $p < .05$.

Erikson's (1963) eight-stages of psychosocial development are referred to by stage number in order to facilitate the presentation of the results. The stages and the psychosocial crises they represent are summarized as follows: Stage 1: trust versus mistrust; Stage 2: autonomy versus shame and doubt; Stage 3: initiative versus guilt; Stage 4: industry versus inferiority; Stage 5: identity versus identity diffusion; Stage 6: intimacy versus isolation; Stage 7: generativity versus stagnation; and Stage 8: ego integrity versus despair. The means and standard deviations for all IPD stages, pooled for all respondents, by cohort and time of testing are shown in Table 2 (Appendix A). Stability coefficients for the IPD for all cohorts across all possible time intervals are represented in Table 3 (Appendix A). It is apparent upon examination of this table that stability coefficients are highest for Cohort 1 between the ages of 42 (1988) and 54

(2000) and next highest for Cohort 2 between the ages of 31 (1988) and 42 (2000). It also apparent that 10-year test-retest intervals yield greater stability coefficients than longer test-retest intervals.

Multivariate Analyses of Variance (MANOVAs)

Table 4 (Appendix A) summarizes the significant MANOVA main effects and interactions. To examine the longitudinal stability of IPD stage scores for Cohort 1 from 20 to 54 years of age, a 2 (gender) × 4 (age-time) MANOVA was performed with repeated measures on the second factor and IPD Stages 1-6 as the dependent variable. This analysis revealed a significant multivariate main effect of age-time, Wilks's lambda = .480, $\underline{F}$ (18, 428) = 7.05, $\underline{p} < .0001$. To examine Cohort 1's pattern of scores on all eight stages, a 2 (gender) × 3 (age-time) MANOVA was performed with repeated measures on the second factor and IPD Stages 1-8 as the dependent variable. This analysis also revealed a significant multivariate main effect of age-time, Wilks's lambda = .539, $\underline{F}$ (16, 194) = 4.39, $\underline{p} < .0001$. These significant multivariate main effects of age-time indicate that the pattern of stage scores for Cohort 1 varied across the ages tested. To determine longitudinal differences on the IPD for Cohort 2, a 2 (gender) × 3 (age-time) MANOVA was performed with repeated measures on the second factor and IPD stages 1-8 as the dependent variable. This analysis revealed a significant main effect for age-time, Wilks's lambda = .417, $\underline{F}$ (16, 98) = 3.36, $\underline{p} < .0001$, indicating that the pattern of IPD stage scores for Cohort 2 is different at different ages. Lastly, a 2 (gender) × 2 (age-time) MANOVA with repeated measures on the second factor and IPD stage scores as the dependent variable was performed to assess longitudinal differences on the IPD for Cohort 3 from 1988 to 2000. This analysis also revealed a significant main effect for age-time, Wilks's lambda = .633, F (8, 46) = 3.34, $p < .004$. As with Cohorts 1 and 2, this finding indicates that IPD stage scores varied with age.

To determine cross-sectional differences on the IPD among Cohorts 1, 2, and 3 for the 2000 testing, a 2 (gender) × 3 (age-cohort) MANOVA was performed, which revealed a significant main effect for age-cohort, Wilks's lambda = .826, F (16, 442) = 2.77, $p < .0001$. This main effect of age-cohort indicates that Cohorts 1, 2, and 3 differ in the resolution of IPD stages 1-8 in the 2000 testing. To assess the impact of environmental influence at a given age, two separate time lag analyses were performed. A 2 (gender) × 3 (cohort-time) MANOVA was performed to examine differences between Cohorts 1, 2, and 3 when the average age of each cohort was approximately 31 years old. This analysis revealed a significant main effect for gender, Wilks's lambda = .924, F (8, 280) = 2.875, $p < .004$, indicating that the pattern of IPD stage scores is different for 31 year old men and women across cohort. This analysis also revealed a significant cohort-time main effect, Wilks's lambda = .788, F (16, 560) = 4.426, $p < .0001$, indicating that the pattern of IPD stage scores is different between cohorts when they were each tested at 31 years of age. A 2 (gender) × 2 (cohort-time) MANOVA was also performed to examine differences between Cohorts 1 and 2 when their average age was 42. This time lag analysis for the age of 42 revealed a significant main effect for cohort-time, Wilks's lambda = .894, F (8, 160) = 2.368, $p < .020$, indicating that the pattern of IPD stage scores differs between Cohorts 1 and 2 when they were each tested at 42 years of age.

A 2 (gender) × 3 (cohort-time) × 2 (time of measurement-age) cross-sequential MANOVA was performed with repeated measures on the third factor to assess the relative effects of cohort and time of testing on 1988 and 2000 IPD stage scores. This analysis revealed main effects for cohort-time, Wilks's lambda = .668, $\underline{F}$ (16, 256) = 3.572, $\underline{p} < .0001$, and time-age, Wilks's lambda = .823, $\underline{F}$ (8, 128) = 3.449, $\underline{p} < .001$. However, these main effects were qualified by a significant cohort-time × time of measurement-age interaction, Wilks's lambda = .796, $\underline{F}$ (16, 256) = 1.933, $\underline{p} < .018$, indicating that IPD stage scores changed differently for Cohorts 1, 2, and 3 between 1988 and 2000.

To examine the relationship between environmental influence and age-related change on IPD stage scores, four cohort-sequential analyses were conducted. Because data are available for all cohorts between the ages of 20 and 31, a 2 (gender) × 3 (cohort-time) × 2 (age-time) MANOVA was performed with repeated measures on the third factor. Because this analysis involves Cohort 1 scores from 1966, only IPD stages 1-6 are used. This analysis revealed main effects for gender, Wilks's lambda = .945, $\underline{F}$ (6, 283) = 2.753, $\underline{p} < .013$, cohort-time, Wilks's lambda = .917, $\underline{F}$ (12, 566) = 2.077, $\underline{p} < .017$, and age-time, Wilks's lambda = .671, $\underline{F}$ (6, 283) = 23.171, $\underline{p} < .0001$. These results first indicate that the pattern of IPD stage scores is different for men and women averaging over cohort and age. They further show that IPD patterns differ for the cohorts and at that there is significant change in some IPD stage scores from time 1 (20 years old) to time 2 (31 years old). IPD scores for Stages 1-8 are only available for Cohorts 2 and 3 between the ages of 20 and 31 as Stages 7 and 8 were not included in the original 1966 study. Thus, to examine differences between Cohorts 2 and 3 between the ages 20 and 31 for all 8 IPD stages, a 2 (gender) × 2 (cohort-time) × 2 (age-time) MANOVA was performed with repeated measures on the third factor. This analysis revealed a significant main effect for gender, Wilks's lambda = .886, F (8, 127) = 2. 039, $p < .047$, and age-time, Wilks's lambda = .616, F (8, 127) = 9.907, $p < .0001$, which indicates that the pattern of IPD stage scores is different for men and women averaging over cohort and age, and that there is significant change in some stages between the ages 20 to 31.

A 2 (sex) × 2 (cohort-time) × 3 (age-time) MANOVA was performed with repeated measures on the third factor to evaluate environmental influence versus age related change between the ages 20 and 42 on the IPD for Cohorts 1 and 2. This analysis revealed significant main effects for cohort-time, Wilks's lambda = .887, F (6, 120) = 2.544, $p < .024$, and age-time, Wilks's lambda = .664, F (12, 490) = 9.280, $p < .0001$. However, these main effects were qualified by a significant age-time × cohort-time interaction, Wilks's lambda = .908, F (12, 490) = 2.014, $p < .021$, indicating the pattern of results for IPD Stages 1-8 between the ages 20 and 42 differs between Cohort 1 and 2. Because analyses involving Cohort 1 college scores exclude Stages 7 and 8, a 2 (sex) × 2 (cohort-time) × 2 (age-time) MANOVA was performed with repeated measures on the third factor for Cohorts 1 and 2 between the ages 31 and 42. As in the previous cohort-sequential analysis, this MANOVA revealed significant main effects for cohort-time, Wilks's lambda = .750, F (8, 118) = 4.906, $p < .0001$, and age-time, Wilks's lambda = .763, F (8, 118) = 4.579, $p < .0001$, that were qualified by a significant age-time × cohort-time interaction, Wilks's lambda = .848, F (8, 118) = 2.652, $p < .01$. This interaction indicates that the pattern of results for IPD Stages 1-8 between the ages 31 and 42 differs between Cohort 1 and 2.

Univariate Analyses of Variance (ANOVAs)

The univariate inferential statistics for each multivariate main effect and interaction are displayed in Table 5 (Appendix A). Significant effects will be summarized by stage in the following way: (a) age-time effects based on the longitudinal analyses; (b) age-cohort effects based on the 2000 cross-sectional analysis; (c) cohort-time effects based on time lag analyses, (d) cohort-time × time-age interaction effects based on the 1988-2000 cross-sequential analysis, and (e) age-time × cohort-time interaction effects based on the cohort-sequential analyses.

Figures 3-8 display the means for the Cohort 1 longitudinal analysis of Stages 1-6 from age 20 to 54; Figures 9 and 10 show the means for the Cohort 1 longitudinal analysis of Stages 7 and 8 from age 31 to 54. Figures 11-18 display the means for the cross-sequential analysis of IPD stage scores for Cohorts 1, 2, and 3 for the 1988 and 2000 testings. Figures 19-24 show the means for the cohort-sequential analysis of Stages 1-6 from age 20 to 31 for all cohorts; Figures 25 and 26 display the means for the cohort-sequential analysis of Stages 7 and 8 from age 20 to 31 for Cohorts 2 and 3. Figures 27-32 show the means for the cohort-sequential analysis of Stages 1-6 from age 20 to 42 for Cohorts 1 and 2, and Figures 33 and 34 display the means for the cohort-sequential analysis of Stages 7 and 8 from age 31 to 42 for Cohorts 1 and 2. All figures are displayed in Appendix B.

Multivariate main effects for gender were observed in the time lag analysis of all cohorts at 31 years of age and the two cohort-sequential analyses involving the ages 20 to 31. These significant multivariate effects were due to univariate main effects for gender in the time lag analysis of all cohorts tested at 31 years of age on Stage 4, $\underline{F}$ (1,

287) = 4.783, $p < .03$, Stage 6, $F(1, 287) = 9.411$, $p < .002$, and Stage 7, $F(1, 287) = 6.341$, $p < .012$. Gender effects were also observed in the two cohort- sequential analyses. Main effects of gender were observed on Stage 4, $F(1, 288) = 4.71$, $p < .031$, and Stage 6 $F(1, 288) = 5.37$, $p < .021$, in the cohort-sequential analysis of Cohorts 1, 2, and 3 tested at ages 20 and 31, and gender main effects were observed on Stage 4, $F(1, 134) = 7.246$, $p < .008$, Stage 6, $F(1, 134) = 8.356$, $p < .004$, and Stage 7, $F(1, 134) = 5.192$, $p < .024$, in the cohort-sequential analysis of Cohort 2 and 3 tested at ages 20 and 31. As predicted on the basis of prior research, all gender effects favored women.

Stage 1

Age-time effects. A significant univariate effect for age-time was observed in the Cohort 1 longitudinal analysis for IPD scores from 1966 to 2000, $F(3, 159) = 3.356$, $p < .02$. Planned comparisons of this stage over the four times of testing revealed that age 20 scores ($M = 11.20$) were not significantly different from age 31 scores ($M = 11.06$) but that age 42 scores ($M = 13.56$) were significantly higher than age 20 ($p < .019$) and age 31 ($p < .009$) scores. Scores at age 54 (M=13.65) were also higher than scores at ages 20 ($p < .05$) and 31 ($p < .04$) but were not significantly different from age 42 scores. This univariate effect was also present in the Cohort 1 longitudinal analysis involving all eight IPD stages from ages 31 to 54. A significant univariate effect for age-time was also observed in the Cohort 3 longitudinal analysis from age 20 to age 31, $F(1, 54) = 5.447$, $p < .023$. Age 31 scores in the year 2000 ($M = 12.09$) were significantly greater than age 20 scores in the 1988 ($M = 10.05$). A significant main effect for age-time was also observed in the cohort-sequential analysis involving Cohorts 1, 2, and 3 at ages 20 and 31 and the cohort-sequential analysis for the same age range involving Cohorts 1 and 2.

Stage 2

Age-time effects. Cohort 1's scores on this stage were different across the four times of testing as revealed by the significant univariate effect of age-time in the longitudinal analysis from age 20 (1966) to age 54 (2000), F (3, 159) = 3.077, $p < 029$. Planned comparisons revealed that Stage 2 scores did not change significantly from age 20 (M = 9.00) to age 31 scores (M = 7.61) or from ages 42 to 54 (M = 9.926). There was a marginally significant difference between ages 31 to 42 (M = 9.315), $p < .055$. Cohort 1 scores at age 54 remained significantly higher than age 31 scores, $p < .01$. This univariate effect of age-time was also present in the longitudinal analysis involving all eight IPD stages from age 31 (1977) to age 54 (2000).

Age-cohort effects. A univariate main effect for age-cohort was observed for Stage 2 in the cross-sectional analysis of Cohorts 1, 2, and 3 for the year 2000, F (2, 231) = 5.373, $p < .005$. A priori contrasts on the cells involved in this analysis supported predictions based on theory. Cohort 1's 2000 scores on Stage 2 (M = 9.47) were greater than Cohort 2's 2000 scores on Stage 2 (M=7.43), t (231) = 2.596, $p < .01$. Cohort 1's scores in 2000 were also higher than cohort 3's scores in 2000 (M= 7.14), t (231) = 2.718, $p < .007$.

Cohort-time effects. A significant univariate effect for cohort-time was observed on Stage 2 in the cross-sequential analysis comparing IPD stage scores for Cohorts 1, 2, and 3 from 1988 to 2000, F (2, 136) = 5.937, $p < .003$. Planned comparisons showed that across time of testing, Cohort 1 (M = 9.62) had higher Stage 2 scores than Cohort 2 (M = 6.63), $p < .006$, and higher Stage 2 scores than Cohort 3 (M = 6.927), $p < .003$. A marginally significant cohort-time effect was also observed for Cohorts 1 and 2 in the age 42 time lag comparison, $\underline{F}$ (1, 169) = 3.644, $\underline{p}$ < .058. A closer examination of the cells involved in this analysis revealed that Cohort 1's Stage 2 scores ($\underline{M}$ = 8.94) in 1988 at the age of 42 were greater than Cohort 2's Stage 2 scores ($\underline{M}$ = 7.43) in the year 2000 at the age of 42, $\underline{t}$ (169) = 2.056, $\underline{p}$ < .041.

Stage 3

Age-time effects. A univariate effect for age-time emerged for Stage 3 in the longitudinal analysis of Cohort 1 ages 20 to 54, $\underline{F}$ (3, 159) = 3.013, $\underline{p}$ < .032. Planned comparisons revealed that age 42 scores ($\underline{M}$ = 13.57) were greater than age 20 scores ($\underline{M}$= 10.59), $\underline{p}$ < .002, and age 31 scores ($\underline{M}$=11.13), $\underline{p}$ < .025. Age 20 scores were not statistically different from age 31 scores on this IPD subscale for Cohort 1. However, Cohort 1's Stage 3 scores significantly decreased from age 42 to age 54 ($\underline{M}$ = 11.50), $\underline{p}$ < .013. This age-time effect was also present in the Cohort 1 longitudinal analysis from age 31 to age 54 involving all eight IPD stages. Marginally significant age-time effects also emerged in the two cohort-sequential analyses involving the three cohorts' IPD stage scores from college to age 31. In both cases, age 31 scores were greater than college age scores.

Cohort-time × time-age effects. A significant cohort-time × time-age univariate interaction emerged in the cross-sequential analysis of all cohorts' IPD stage scores from 1988 to 2000, $\underline{F}$ (2, 136) = 3.763, $\underline{p}$ < .026, indicating that Stage 3 scores changed differently over this time interval for the three cohorts. Planned comparisons of the cells involved in this analysis show that Cohort 1's scores significantly decreased from 1988 ($\underline{M}$ = 13.574) to 2000 ($\underline{M}$ = 11.5), $\underline{t}$ (53) = 67.29,

$p < .0001$, whereas Cohorts 2 and 3 did not significantly change over this time period. Comparisons of the 1988 scores on this stage for the three cohorts revealed marginally significant differences between Cohort 1 ($M = 13.57$) and Cohort 2 ($M = 10.53$), $t(136) = 1.861$, $p < .065$, as well as between Cohort 1 and Cohort 3 ($M = 10.98$), $t(136) = 1.886$, $p < .061$. There were no differences between the cohorts on Stage 3 in the 2000 testing.

Age-time × cohort-time effects. A significant univariate age-time × cohort-time interaction emerged in the cohort-sequential analysis of Cohorts 1 and 2 between the ages of 20 and 42, $F(2, 252) = 4.219$, $p < .016$. Planned comparisons on the cells involved in this analysis revealed that Cohort 1's age 42 scores ($M = 12.64$) were significantly greater than its age 20 scores ($M = 10.60$), $p < .004$, and age 31 scores ($M = 10.90$), $p < .023$. In contrast, Cohort 2's scores on this stage 3 were not significantly different over this age range.

Stage 4

Age-time effects. All cohorts displayed significant univariate age-time effects on Stage 4 in their longitudinal analyses. A main effect for age-time emerged in Cohort 1's longitudinal analysis from age 20 (1966) to age 54 (2000), $F(3, 159) = 34.15$, $p < .0001$. Planned comparisons of these ages revealed that Stage 1 scores increased significantly from college ($M= 7.74$) to age 31 ($M = 14.17$), $p < .0001$, and again between ages 31 and 42 ($M = 17.30$), $p < .003$. Cohort 1 scores, however, did not significantly change from age 42 to age 54. Cohort 2 showed significant change on Stage 2 in the longitudinal analysis from age 20 (1977) to age 42 (2000), $F(2, 58) = 7.79$, $p < .001$. Planned comparisons of the cells involved in this analysis revealed that Stage 4 scores increased from age 20 (M= 11.57) to age 31 (M = 14.53), $p < .016$. There was a marginally significant increase from age 31 to age 42 (M=16.80), $p < .071$. Similarly, Cohort 3's Stage 4 scores increased significantly from age 20 in 1988 (M = 9.25) to age 31in 2000 (M = 14.87), $F(1, 54) = 22.83$, $p < .0001$. Main effects for age-time on Stage 4 emerged in all cohort-sequential analyses. Averaging over cohort, scores at age 31 were greater than scores at age 20, and scores at age 42 were greater than scores at age 31.

Cohort-time effects. A significant univariate effect of cohort-time emerged in the cohort-sequential analysis of all cohorts ages 20 to 31, $F(2, 288) = 5.72$, $p < .004$. Tukey's HSD method revealed that averaging across the two times of testing Cohort 2 had significantly higher Stage 4 scores than Cohort 1, $p < .004$.

Cohort-time × time-age effects. In the cross-sequential analysis involving all cohorts' IPD scores in 1988 and 2000, main effects of cohort-time and time-age were observed for Stage 4. These effects, however, were qualified by a significant cohort-time × time-age interaction, $F(2, 136) = 10.65$, $p < .0001$. Planned comparisons on the cells involved in this analysis reveal a significant increase from 1988 to 2000 on Cohort 3's Stage 4 scores, $p < .0001$. Cohorts 1 and 2 did not change significantly over this time period. A priori contrast of the 1988 scores showed that Stage 4 scores for Cohort 3 (M = 9.25) were significantly lower than Cohort 1 (M = 17.30), $t(136) = 5.1$, $p < .0001$, and Cohort 2, $t(136) = 2.83$, $p < .005$.

Age-time × cohort-time effects. In the cohort-sequential analysis of Cohorts 1 and 2 between the ages of 20 and 42, a significant age-time × cohort-time interaction emerged, $F(2, 252) = 3.512$, $p < .031$, qualifying the significant main effect of age-time observed for this stage. This interaction indicates that the change between ages 20 and 42 was different for Cohorts 1 and 2. Further analysis of the means involved in this finding show that both Cohort 1 and Cohort 2 showed significant increases on Stage 4 from age 20 to age 42. For Cohort 1, scores increased from a mean of 7.02 at age 20 to a mean of 13.95 at age 31, $p < .0001$, with scores again increasing from age 31 to age 42 ($M = 16.52$), $p < .001$. Similarly, Cohort 2's Stage 4 scores increased from college ($M = 11.56$) to 31 years of age ($M = 14.53$), $p < .016$, and showed a marginally significant increase again from age 31 to age 42 ($M = 16.8$), $p < .071$. Although the Stage four scores for Cohort 1 at age 20 were significantly lower than Stage 4 scores for Cohort 2 at age 20, $t(127) = -2.856$, $p < .005$, Stage 4 scores did not differ between the cohorts at ages 31 and 42.

Stage 5

Age-time effects. A significant univariate effect of age-time was observed for Cohort 3 on Stage 5, $F(1, 54) = 12.79$, $p < .001$, indicating that scores at age 31 ($M = 10.40$) were significantly higher than scores at age 20 ($M = 6.84$). Univariate effects for age-time were also observed in the cohort-sequential analysis of all cohorts at ages 20 and 31, $F(1, 288) = 37.95$, $p < .0001$, and the cohort-sequential analysis of Cohorts 2 and 3 at ages 20 and 31, $F(1, 134) = 24.63$, $p < .0001$. Both analyses revealed that across cohort age 31 scores were greater than age 20 scores. There was also a significant univariate effect of age-time in cohort-sequential analysis of Cohorts 1 and 2 ages 20 to 42, $F(2, 250) = 4.52$, $p < .012$. Averaging over cohort, Stage 5 scores increased significantly from college to age 31, $p < .013$, but did not increase again from age 31 to 42.

Cohort-time × time-age effects. A significant cohort-time × time-age interaction emerged from the cross-sequential analysis of all cohorts' 1988 and 2000 IPD stage scores, F (2, 136) = 4.80, $p < .01$, which qualified a significant main effect for time-age on Stage 5 in this analysis. As with the significant age-time effect described in the previous section, Cohort 3's Stage 5 scores increased significantly from 1988 to 2000, whereas Stage 5 scores for Cohorts 1 and 2 did not. Contrasts further revealed that Cohort 1's Stage 5 scores in 1988 (M = 10.79) were significantly higher than Cohort 3's Stage 5 scores in 1988 (M = 6.83), t (136) = 2.926, $p < .004$. No differences emerged among cohorts in the 2000 testing on this stage.

Stage 6

Age-time effects. No significant changes over time were observed in the longitudinal analyses of cohorts 1, 2, and 3 on this stage. However, main effects of age-time did emerge in several of the cohort-sequential analyses. In the cohort- sequential analysis involving all cohorts ages 20 to 31, age 31 scores were significantly higher than age 20 scores averaging over cohort, F (1, 288) = 22.00,

$p < .0001$. A similar finding emerged in the cohort-sequential analysis involving Cohorts 2 and 3 at ages 20 and 31, F (1, 134) = 11.99, $p <$ 001. Again, age 31 scores were significantly greater than college scores. A significant age-time main effect was also observed in the cohort-sequential analysis involving Cohorts 1 and 2 from age 20 to age 42, F (2, 250) = 8.33, $p < .0001$. Analyses of the means involved in this test revealed that both age 31 and 42 scores on Stage 6 were significantly greater than college age scores on Stage 6, $ps < .001$. The means at age 31 and 42, however, were not significantly different.

Cohort-time effects. A significant univariate effect of cohort-time emerged in the time lag analysis of Cohorts 1 and 2 at age 42, $F\ (1, 169) = 5.16$, $p < .024$, indicating that Cohort 2 ($M = 16.19$) had higher Stage 6 scores than Cohort 1 ($M = 13.32$) at age 42. Cohort-time main effects were also found in the cohort-sequential analysis of Cohorts 1 and 2 between the ages of 20 and 42, $F\ (1, 125) = 4.90$, $p < .029$, and in the cohort-sequential analysis of Cohorts 1 and 2 between the ages of 31 and 42, $F\ (1, 125) = 4.563$, $p < .035$. As in the age 42 time lag analysis, these cohort-time main effects were due to Cohort 2 having greater Stage 6 scores than Cohort 1 averaging across time of testing.

Stage 7

Age-time effects. Contrary to expectations, the only significant age-time effect that emerged with respect to Stage 7 was in the cohort-sequential analysis of Cohorts 2 and 3 between the ages of 20 and 31, $F\ (1, 134) = 6.73$, $p < .011$. Averaging over cohort, age 31 scores were significantly higher than college age scores.

Stage 8

Age-time effects. A univariate effect of age-time emerged in the longitudinal analysis of Cohort 1 from age 31 to age 54, $F\ (2, 106) = 7.52$, $p < .001$. Planned comparisons revealed that after a decrease in Stage 8 scores from age 31 (M=8.76) to age 42 ($M = 5.44$), $p < .0001$, Cohort 1 showed a non-significant increase in Stage 8 scores from age 42 to age 54 ($M = 6.61$).

Cohort-time effects. In the age 31 time lag analysis of all cohorts, a significant main effect of cohort-time emerged, $F\ (1, 287) = 11.37$, $p < .0001$. Cohort 1 at age 31 scored higher than Cohorts 2 at age 31, $t\ (290) = 4.70$, $p < .0001$, and Cohort 3 at age 31, $t\ (290) = 2.61$, $p < .009$. Cohorts 2 and 3 did not differ significantly. A significant main effect of cohort-time also emerged in the cross-sequential analysis of all cohorts' IPD stage scores from 1988 to 2000, $\underline{F}$ (2, 136) = 3.30, $\underline{p} < .04$. Planned comparisons revealed that Cohort 1 had greater Stage 8 scores than Cohort 2 averaging over the 1988 and 2000 testings, $\underline{p} < .016$.

Age-time × cohort-time effects. The cohort-sequential analysis of Cohorts 1 and 2 from ages 31 to 42 showed a significant age-time × cohort-time interaction, $\underline{F}$ (1, 125) = 9.516, $\underline{p} < .003$, in addition to the cohort-time and age-time main effects observed for this stage. Planned comparisons revealed that Cohort 1's scores significantly decreased over this age range from a mean of 8.76 to a mean of 5.44, $\underline{t}$ (98) = 6.53, $\underline{p} < .0001$, whereas Cohort 2's stage scores over this age range did not change significantly. As previously noted, Cohort 1 manifested higher Stage 8 scores at age 31 than Cohort 2 at age 31, $\underline{t}$ (127) = 4.06, $\underline{p} < .0001$. There were no appreciable differences at age 42 between Cohorts 1 and 2.

Summary of Significant Effects Across Stages

Age-time effects. Significant age-time effects were observed for all stages except Stages 6 and 7. Cohort 3 showed significant increases from age 20 to age 31 on Stage 1 and Cohort 1's Stage 1 scores changed significantly from ages 31 to 42. Cohort 1 also showed significant movement on Stage 2 but, as with Stage 1, this change reflected earlier rather than later change. These findings are consistent with expectations as people in midlife should show relative stability on earlier stages. Surprisingly, Cohort 1 showed a significant decline in Stage 3 scores from age 42 to age 54, which was the only significant age-time effect observed for this stage. All cohorts showed significant age-time effects on Stage 4. Cohort 3's scores at age 31 were significantly higher than their college age scores. The age-time effect for Cohorts 1 and 2 on Stage 4 reflected earlier rather than later progression, which is consistent with theory. As predicted, only Cohort 3 changed significantly on Stage 5 from 1988 to 2000. Stage 8 scores changed for Cohort 1 only. It was hypothesized that Stage 8 scores would increase between 1988 and 2000; however, although Cohort 1 scores did increase during this interval, this increase was not significant. The univariate effect of age-time on this stage for Cohort 1 reflected a significant decrease in Stage 8 scores from age 31 to age 42.

Age-cohort effects. It was hypothesized that differences between cohorts would emerge in the 2000 cross-sectional analysis as greater psychosocial resolution accompanies age. The only significant age-cohort effect to emerge, however, was for Stage 2. Nevertheless, as predicted, Cohort 1's 2000 scores were significantly greater than Cohort 2's and Cohort 3's.

Cohort-time effects. Varying patterns of significant cohort-time effects were observed in the present research for Stages 2, 4, 6, and 8. Consistent with theory, the cross-sequential analysis showed Cohort 1 to have greater Stage 2 scores than Cohort 2 averaging over the 1988 and 2000 testings. Cohort 1 also had greater Stage 8 scores than Cohort 2 in the time lag analysis involving all IPD stage scores at age 31. This finding also emerged in the cross-sequential analysis; averaging over time of testing, Cohort 1 had higher Stage 8 scores than Cohort 2. Cohort 2, however, was shown to have greater Stage 4 scores than Cohort 1 averaging over time of testing in the cohort-sequential analysis of IPD stage scores between ages 20 and 31. In the time lag analysis of IPD stage scores at age 42, Cohort 2 was also found to have greater Stage 6 scores than Cohort 1.

Cohort-time × time-age effects. Significant cohort-time × time-age interaction effects emerged for Stages 3, 4, and 5, in the cross-sequential analysis involving stage scores for all cohorts in the 1988 and 2000 testings. Contrary to expectations, Cohort 1's scores on Stage 3 significantly decreased between times of testing whereas Stage 3 scores for Cohorts 2 and 3 did not. Stage 4 scores significantly changed from 1988 to 2000 for Cohort 3, whereas Stage 4 scores remained constant for Cohorts 1 and 2, as predicted. Also consistent with theory, Stage 4 scores for Cohort 3 were significantly lower in 1988 than either Cohort 1's or Cohort 2's scores. Cohort 3's scores significantly changed from 1988 to 2000 on Stage 5. In contrast, scores on this stage for Cohorts 1 and 2 remained the same. Consistent with expectations, Cohort 1's 1988 scores on this stage were higher than Cohort 3's.

Age-time × cohort-time effects. Significant age-time × cohort-time interaction effects emerged for stages 3, 4, and 8. In the cohort-sequential analysis of Cohorts 1 and 2 ages 20 to 42, Cohort 1 showed significant increases on Stage 3 over this age range whereas Cohort 2 did not. This is consistent with predictions and provides evidence for social historical influence at time of testing. A significant interaction effect also emerged for Stage 4 in the cohort-sequential analysis of Cohorts 1 and 2 for ages 20 to 42. Both Cohorts 1 and 2 showed significant increases in Stage 4 scores from age 20 to age 42. In addition, Cohort 1's Stage 4 scores at age 20 were significantly lower than Cohort 2's Stage 4 scores at this age. Lastly, as revealed in the cohort-sequential analysis of Cohorts 1 and 2 from ages 31 to 42, Cohort 1 showed a significant decline in Stage 8 scores whereas Cohort 2's scores over this range did not change significantly. Cohort 1 also had higher Stage 8 scores at 31 years of age than Cohort 2 did at 31 years of age.

CHAPTER IV

RESEARCH IMPLICATIONS AND CONTEXTUAL DISCUSSION

Discussion

The present study examined psychosocial development in three cohorts of men and women. The principal focus of this investigation was on testing the psychosocial maturity hypothesis, which is based on two interrelated postulates: a) personality is expected to change in adulthood, and b) change should reflect increasing psychosocial resolution. Results of this investigation provide mixed support for this hypothesis. On the one hand, patterns of personality change were evident; on the other hand, the majority of this change took place in early adulthood between the ages of 20 and 31. Although change was detected on the IPD across all age ranges tested, it appears on the basis of these data that personality becomes increasingly stable in middle adulthood.

Both mean-level stability and rank-order consistency estimates showed greater change in the decades of the 20s and 30s and considerably less change in the decade of the 40s. However, because data were available only for Cohort 1 during the decade of the 40s, this stability maybe cohort specific. Cohort 3 showed increases during its 20s on Stages 1, 4, and 5, and Cohorts 1 and 2 showed increases during their 20s on Stage 4. In the decade of the 30s, Cohort 1's scores decreased on Stage 8 and increased on Stages 1, 2, 3, and 4, and Cohort 2's scores showed a marginal increase on Stage 4. However, in the decade of the 40s, for which data were available only for Cohort 1, the only significant change in IPD stage scores was a decrease on Stage 3. Rank-order consistency estimates over the various age-time intervals available suggest a similar pattern. The highest test-retest correlations were for Cohort 1 between the ages of 42 and

54 (.71) and for Cohort 2 between the ages of 31 and 42 (.59). Consistent with the work of Costa and McCrae (1994; 1997) and Roberts and DelVecchio (2000), these test-retest correlations indicate the rank ordering of scores in midlife remains relatively consistent over time. They further support the age 50 hypothesis, which claims that personality becomes increasingly consistent and stable in middle adulthood (Roberts & DelVecchio, 2000).

There are a number of possible explanations for these findings. The most evident one is that there may be striking similarities between the IPD and other trait measures of personality such as the NEO-PI-R (McCrae & Costa, 1990). That is, there maybe higher-order factors that the 8-stage IPD is tapping, which reflect basic trait dimensions of personality. Positive resolution of the industry versus inferiority stage, for example, may tap the underlying dimension of Conscientiousness. Items on the IPD that measure industry such as "conscientious and hard-working" and "excel in my work" are similar to bipolar descriptors used to assess trait levels of Conscientiousness (e.g., lazy-hard-working and negligent-conscientious). Positive resolution of the intimacy versus isolation stage may tap the underlying trait dimension of Extraversion. Intimacy items ask respondents to rate themselves on their level of candidness, warmth and friendliness, sympathy for others, and comfort in personal relationships, which is similar to Extraversion, a trait which consists of bipolar descriptors such as loner-joiner, quiet-talkative, and affectionate-reserved. Other IPD stages may also be tapping basic trait dimensions. For example, generativity resolution has been found to positively correlate with the basic trait dimension of Openness to Experience (Bradley & Marcia, 1998). As a result, the stability observed in the present study may reflect underlying trait dimensions, which have been shown to remain stable in middle adulthood (Costa & McCrae, 1994; Costa & McCrae, 1997).

McAdams (1994) argues that stability and change depend on the level of personality that is examined. According to McAdams, at the dispositional trait level, considerable stability is expected because traits are conceptualized and operationalized in global terms and are not contingent on life experiences. However, change becomes increasingly apparent at the personal concerns level, which contains a person's strivings, mechanisms of defense, and coping styles. Change becomes even more apparent at the life narrative level, which concerns an individual's creation of his or her life story. Furthermore, McAdams (1992) argues that trait personality research it is not specific enough to predict behavior in specific circumstances, unable to generate causal models of human behavior, disregards the contextual and conditional nature of human experience, reduces the individual to a set of scores on a series of linear dimensions, and forces respondents to adopt an objective/observer attitude toward themselves. Because many of these criticisms are applicable to this research and the IPD, it is possible that the present study was also biased toward stability.

The present findings support the notion that personality becomes increasingly stable and consistent in middle adulthood. An alternative explanation is that these data reflect sociohistorical influence. Many of the changes observed in Cohort 1 between ages 31 (1977) and 42 (1988) were not observed in Cohort 2 between ages 31 (1988) and 42 (2000) suggesting time of testing effects. The absence of findings involving Cohort 2, however, may in all likelihood reflect lack of power as only 30 of the 73 respondents from the 2000 follow-up participated in all testings. Furthermore, the only significant change in Cohort 1's scores from age 42 (1988) to age 54 (2000) was a decrease in Stage 3 scores. Until this finding is replicated in another cohort, it will remain unclear whether this decrease reflects age-related change or time of testing influence. Consequently, the lack of change for both Cohort 1 and Cohort 2 between the 1988 and 2000 testings may reflect stability in the environment as opposed to stability in personality.

America is a nation of consumers and the Dow Jones Industrial Average (DJIA) can be seen as a state index of our national economic confidence. During the 1990s, the DJIA has seen a steady increase from approximately 3,000 in 1991, just after the recession of 1990, to approximately 11,000 at the time of the 2000 follow-up. This economic growth and security enjoyed by Cohorts 1 and 2 in the 1990s may have been reflected in their 2000 IPD scores. However, the political scandals that marred the United States during the second term of the Clinton administration is as much a reason as any to expect the IPD to reflect change on stages such as integrity versus despair. Given the fit of the present findings with previous research on midlife personality stability, economic security during the 1990s seems to be an unlikely explanation for the personality stability demonstrated by middle age adults in the 2000 testing. Economic security also does not adequately account for the Cohort 1's decrease from 1988 to 2000 in initiative versus guilt. A more likely explanation is that initiative versus guilt (playful and adventuresome) taps a dimension of Extraversion (social interaction), which has been found to decrease from young to middle adulthood (Costa & McCrae, 1994, 1997).

In contrast to Cohorts 1 and 2, Cohort 3 showed considerable change during the 1990s on Stages 1, 4, and 5. These changes replicate increases on Stages 4 and 5 that were observed for Cohorts 2 and 3 from college to age 31. The same pattern of increases for Cohorts 1, 2, and 3, which traversed the decade of the 20s in the 1960s, 1970s, and 1980s, respectively, provides strong support for true age-related change in psychosocial resolution. Furthermore, these findings join other related research demonstrating substantial change in personality during the decade of the 20s (Costa & McCrae, 1997). The alternative explanation that Cohort 3's changes reflect time of testing seems implausible given the fit of these data with past research.

The second goal of this study was to determine whether changes in IPD stage scores were consistent with Eriksonian theory. In the 2000 cross-sectional analysis, only Stage 2 yielded a significant main effect of age-cohort. Cohort 1's 2000 scores were higher than Cohort 2's or Cohort 3's. Although consistent with the psychosocial maturity hypothesis (i.e., greater psychosocial resolution accompanies increasing age), this finding is confounded by cohort differences and cannot be interpreted to reflect differences based on age. Cohort 1 also scored higher on Stage 8 than Cohort 2 did in the time lag analysis of 31 year-olds and in the cross-sequential analysis of scores between 1988 and 2000. This finding is also consistent with theory in that adults in their mid 50s would have had more opportunity to achieve greater wholeness, meaning in life, and connection with others than adults in their early 40s. However, the fact that Cohort 1 scored higher on Stage 8 at age 31 than Cohort 2 scored on Stage 8 at age 31 suggests cohort differences are confounding the effects of age. As a result, although these findings are consistent with Erikson's theory, they are confounded by cohort differences.

Cohort 3, however, showed expected gains on Stages 4 and 5 from age 20 to age 31 replicating increases observed on this stage for Cohorts 1 and 2 over the same age range. This provides substantial support for the saliency of industry and identity conflicts in young adulthood. Cohort 3, however, also increased from age 20 to age 31 on Stage 1, which is unsurprising given previous follow-ups but not predicted on the basis of theory. Interestingly, Cohort 1 showed increases on Stage 1 from age 31 (1977) to age 42 (1988). Cohort 1's scores also significantly decreased on Stage 3 from age 42 to age 54, which is inconsistent with the psychosocial maturity hypothesis and Eriksonian theory. While these findings are mixed with respect to the timing of psychosocial crises in adulthood, they do not support an orderly sequence of stage resolution. They are consistent, however, with Whitbourne's reworking of Erikson's theory based on the 1988 follow-up of the present sample (Whitbourne et al., 1992). According to this view, the sequencing of Erikson's stages is not unidirectional and there is not an epigenetic unfolding of developmental issues. As Whitbourne et al. explain, "all psychosocial issues can reach ascendancy at any particular time in the individual's life, depending on unique factors specific to that individual's biological, psychological, or social trajectories" (p. 270).

Perhaps most surprising was the paucity of changes on Stage 7, generativity versus stagnation, which is theorized to come to ascendancy in midlife. Support for positioning the generativity crisis in midlife, however, has been mixed. For example, Vandewater and McAdams (1989) found no age-related change in generativity in a sample ranging in age from 22 to 72. However, McAdams, de St. Aubin, and Logan (1993) used a stratified random sampling procedure to investigate generativity in young (ages 22-27), middle (ages 37-42), and older (ages 67-72) adults and found a significant quadratic trend emerged with middle-adults scoring higher than young and older adults on generative concern and action. Older adults, however, scored higher than middle age adults on generative commitment and narration, and young adults scored lowest on these indexes of generativity, complicating the issue of when generativity concern becomes most salient in adulthood.

Recently, Stewart and Vandewater (1998) proposed a life span developmental model of generativity. According to the authors, generative desires or goals are expressed in young adulthood, a felt capacity for generativity and the confidence that one can be generative is developed in middle adulthood, and in later adulthood, a feeling of generative accomplishment is experienced. Stewart and Vandewater examined this model in a longitudinal study of college educated women measured at four different points in time (ages 21, 24, 35, and 47). Consistent with their model, expressions of generative desire were highest at age 24, next highest at 21, and lowest at ages 35 and 47. It seems reasonable to suspect that the IPD is insensitive to the various ways generativity can be expressed over the life course.

Peterson and Stewart (1993) provided evidence that generative issues are a concern for young adult men and women ($\underline{M}$ = 28 years old). According to these researchers, an opposite relationship between generativity and social motives emerged for men and women. For young women, the power motive was related to parenting and the achievement motive was related to personal productivity and societal concern. For young men, the power motive was related to personal productivity and there was a trend for the achievement motive to be related to parenting involvement. With respect to the present investigation, longitudinal analyses between 1988 and 2000 on Stage 7 for Cohorts 1, 2, and 3 did not yield a significant difference between parents and non-parents. The small number of non-parents in each cohort, however, in these exploratory analyses may have precluded making statistical comparisons. It is interesting to note that the only significant changes on generativity were observed in the 1988 follow-up with both Cohorts 1 and 2 decreasing on Stage 7 from 1977 to 1988. Given Stewart and Vandewater's (1998) analysis, it is possible that the change from 1977 to 1988 reflected decreases in generative accomplishment, which is what is traditionally meant by generativity, while felt capacity and generative desire remained untapped by the IPD.

Another interpretation is that the absence of findings on Stage 7 reflected low subscale reliabilities, e.g., .52, .37, and .49 for Cohorts 1, 2, and 3, respectively. These low subscale reliabilities may have resulted because generativity is not a simple unitary construct. McAdams and de St. Aubin (1992) construe generativity as a contextual, multidimensional, and psychosocial construct that consists of seven interrelated elements: cultural demand, inner desire, generative concern, belief in the species, commitment, generative action, and personal narration. The distinguishing feature of this model is that it covers the motivational (inner desire and cultural demand), behavioral (action), and cognitive (concern, belief, and commitment) components of generativity; furthermore, it invokes the notion of a life-story or personal myth (generative narration) that may bind the aforementioned components together.

Bradley (1997; Bradley & Marcia, 1998) recently proposed a five-category generativity status model describing five possible combinations of self-other involvement that can occur during the generativity versus stagnation stage. Generative adults are involved in their careers, interested in the development of young people, and concerned about global societal issues. Conventional adults are generative in the sense they are truly concerned with young adults and believe they require firm guidance. However, this style of generative resolution is also characterized by a restricted worldview and difficulty deviating from established rules, values, and expectations. Agentic adults are highly self-involved but do not show much involvement in others, whereas communal adults are highly involved in others but do not show much involvement in themselves as contributing to the next generation. Stagnant adults represent the lowest form of generative resolution and are characterized by low involvement and inclusivity in the self and others. Taking the Bradley's model together with Stewart and Vandewater's (1998) developmental perspective, it is likely that the generativity scale on the IPD is not capturing the multiple paths to generativity resolution and the various dimensions of generative expression throughout the life span.

This study also examined a third question: To what degree does personality change in adulthood reflect true age-related change or sociohistorical influence? The results of this study provide evidence for both age-related change (i.e., two or more cohorts showing similar patterns of change over the same age range) and environmental influence (i.e., two or more cohorts showing dissimilar patterns of change over the same age range). Strong evidence for age-related psychosocial progression was obtained for Stage 4 during the decades of the 20s and 30s. All cohorts showed significant increases on Stage 4 between the ages of 20 and 31 and Cohorts 1 and 2 showed similar increases on this stage between the ages of 31 and 42. Cohort 2's increase on Stage 4 from 31 to 42 was marginally significant ($p < .071$), which most likely reflected a lack of power. Cohort 3 also showed marked increases on Stage 5 between the ages of 20 and 31. Similar increases on Stage 5 between the ages of 20 and 31 were observed for Cohorts 1 and 2 in the 1988 follow-up (Whitbourne et al., 1992) and were indicated in the univariate effects of age-time in the cohort-sequential analyses in the present study. These changes provide strong evidence for continued developmental progression in industry and identity resolution in young and middle adulthood.

Evidence for sociohistorical influence on personality development comes from different patterns of ego integrity resolution for Cohorts 1 and 2 between the ages of 31 and 42. From 1977 to 1988, Cohorts 1 and 2 showed sharp declines in ego integrity scores that were hypothesized to reflect general erosion in American philosophical values resulting from the materialist culture of the 1980s (Whitbourne et al., 1992). Given the economic growth and security that occurred during the 1990s and the Clinton administration's greater commitment to social welfare programs, it was expected in this study that Stage 8 scores would increase from 1988 to 2000. Although scores did increase for both cohorts over this time interval, these increases were non-significant. However, there were differential patterns of change on ego integrity scores over the 31-42 year old age range for the two cohorts. That is, Cohort 1 decreased in ego integrity resolution from age 31 to age 42 and Cohort 2's scores on this stage remained stable. This differential pattern implies the presence of sociohistorical influence with the materialist 1980s depressing Cohort 1's integrity scores and the economic security of the 1990s contributing to Cohort 2's stable integrity scores.

A fourth goal of this investigation was to examine gender differences in psychosocial development. It was hypothesized on the basis of previous follow-up studies that there would be few gender differences and that the differences observed would favor women. This hypothesis was supported. Women showed greater psychosocial resolution on Stage 4 (industry versus inferiority), Stage 6 (intimacy versus isolation), and Stage 7 (generativity versus stagnation) in the time lag analysis of IPD scores at age 31 and in the cohort-sequential analyses for all cohorts ages 20 to 31. Gender differences were not observed in Cohorts 2 and 3 at age 42 or in Cohort 1 at age 54.

The gender differences observed for Stages 6 and 7 are not surprising due to differences that exist in socialization between men and women. Cross and Madson (1997), summarizing a substantial body of work, cite the following examples of gender differences in socialization: (a) parents are more likely to discuss emotions with girls than boys; (b) girls' groups beginning at age 3 are characterized by intimate friendships and cooperation whereas boys' groups are characterized by competitiveness and rough play; and (c) parents are more likely to assign girls child care responsibilities than boys, and consequently, women in U.S. society are more likely to take on child care responsibilities. As a result, Cross and Madson argue that self-construal in the United States is different for men and women. Women's self-concepts are characterized by interdependence whereas men's self-concepts are characterized by independence. Interdependence is conceptualized as self-definition that is based on one's relationships and group membership, harmony with others, and is principally concerned with connection. Independent self-construal is based largely on autonomy, uniqueness, distinction, and separateness from others. Thus, women seek close relationships (intimacy) and close contact with children (generativity) because responsibility for the other and attunement to the other's feelings are central to interdependent self-construal.

Women also scored higher on Stage 4 (industry versus inferiority), which is concerned with ambition, productivity, and the work ethic. It is possible that women scored higher on this stage because of the greater challenges associated with work for women in our society. According to Burns (1996), employed women earn considerably less than employed men, jobs predominantly held by women earn lower pay than jobs predominantly held by men, the majority of society's most prestigious jobs are held by men, and women are poorly represented in government. This significant social inequality may have spurred the women of Cohorts 1, 2, and 3 on in the development of greater industry resolution. Using this logic, it might be expected that men would score higher on intimacy and generativity, which was not the case. This argument, however, is contingent on men accepting intimacy and generativity issues as challenges, which is not self-evident. Indeed, men with independent self-construals may find intimacy threatening to their autonomy and self-esteem and, therefore, may shy away from emotionally close and intimate relationships (Cross & Madson, 1997). In contrast, women have clearly accepted the challenge of negotiating work and child rearing responsibilities, as the majority of American women are part of the paid labor force.

Limitations of the Study

There were several constraints limiting the conclusions that can be drawn from the present investigation. First, it is possible that attrition has substantially compromised the internal validity of the findings. According to Roberts and DelVecchio (2000), high attrition rates bias research findings in longitudinal studies toward stability, because the people who remain in longitudinal studies are by definition stable. Furthermore, attrition rates increase as a function of the length follow-up interval with smaller intervals finding greater stability and longer intervals finding greater change. Roberts and DelVecchio did not find any effect of attrition in their meta-analysis of 152 studies, and concluded that researchers should question the assumption that attrition is a major distorting influence in longitudinal studies. In this study, significant effects were not observed in the overall multivariate analyses used to test attrition effects indicating that the pattern of scores for those who remained in the study and those who did not were not significantly different.

Although attrition effects were not observed for any cohort, only 55 of the original 292 Cohort 3 participants were successfully followed in the 2000 testing. It is possible that the survey method used in the present study resulted in low return rates but this seems unlikely for several reasons. First, lower than expected return rates were not observed in Cohorts 1 and 2. Although only 54 Cohort 1 and 30 Cohort 2 respondents had participated in all of the follow up testings, the number of respondents in the 2000 testing for these cohorts were similar to the number of respondents followed in the 1988 testing. Second, the survey procedures used in this study closely followed those suggested in the literature (Weathers, Furlong, & Solorzano, 1993). However, it is worth noting that the survey method employed in the present study diverged from these suggestions in several ways. For example, business reply envelopes were used as opposed to first-class postage. Theoretically, first class postage increases the amount of personal attention invested in potential respondents, encouraging greater response rate. Although the majority of survey researchers (66.7%) use hand-signed cover letters to increase personalization (Weathers et al., 1993), the present study used photocopied cover letters. Weathers and her colleagues, however, did not find that hand signed cover letters predicted increased response rates. The response rate for Cohort 3 may have also been compromised because this study did not use pre-paid monetary incentives. According to Weathers' review of the literature, the pre-paid monetary incentive is a cost-effective method of increasing response rates in follow-up mailings. Nevertheless, only 2 out of 34 studies in her analysis of survey methods in counseling psychology used pre-paid incentives. The use of pre-paid monetary incentives was precluded in the current investigation because of insufficient funding.

Based on the above considerations, it seems likely that the low return rate for Cohort 3 may be generationally specific. The average age of Cohort 3 respondents was 31.93 making it part of what has been called Generation X, after Douglas Coupland's (1991) novel, Generation X: Tales for an Accelerated Culture. Most people define Generation X as consisting of Americans born between the mid 1960s and early 1980s. The majority of Cohort 3 respondents were born during the Vietnam War, which divided the United States and cost it considerable international prestige. They were raised in the 1970s and 1980s, a time in U.S. history when economic prospects were low, jobs were lost, and politics were marred by scandal. For the first time, Americans began talking of "downward" as opposed to "upward" social mobility. With women's increasing dissatisfaction with homemaking and men's unwillingness to contribute to managing household responsibilities, Generation X developed a symbiotic relationship with television, and was largely expected to care for itself, giving rise to the phenomena of "latchkey kids." Furthermore, Generation X saw increases in divorce rates forcing its members to cope with unstable and broken homes as was true for no other generation before. As a result, Generation X was seen as inheriting a bleak world, which may have contributed to it being notoriously uninterested in politics, suspicious of institutions, skeptical of political leaders, and cynical. Given that salience of the topic under investigation to the respondent is one of the two most important predictors of response rate in survey research (Weathers et al., 1993), it is possible that Cohort 3's low return rate reflects an overall feeling of disconnection indicative of Generation X. Indeed, the major source of follow-up address information for this study was obtained from the University of Rochester alumni directory, which did not have updated records on the majority of Cohort 3 participants from the 1988 testing, who presumably did not maintain contact with university alumni office. This is consistent with the disconnection hypothesis.

This study was also limited because it exclusively relied on a single self-report measure. Relying exclusively on self-report instruments produces surplus construct irrelevancies that cannot be dissociated from the measurement of the target construct (Cook & Campbell, 1979). The sample of the present study also allows for limited generalization as it consisted of White, educated, middle-class and upper-middle class men and women from the University of Rochester. Although this kind of sample is typical of longitudinal studies, homogeneity with respect to ethnicity and SES does not allow for generalization beyond the traditional 4-year White college student.

Social desirability may have also played a role in the present findings. Socially desirable responding refers to the willingness to acknowledge only those aspects of the self that an individual believes to be favorable. Given the positive and negative dimensions that contribute to each IPD stage score, it seems possible that socially desirable responding may have been an issue. However, Costa and McCrae

(1994) maintain that social desirability is not as serious a contaminant as researchers once thought. According these authors, a substantial body of work has now demonstrated that individual differences in the propensity to endorse socially desirable items are weak compared to individual differences in traits. Indeed, social desirability shows very little effect on the factor structures of personality measures when groups of honest and socially desirable responders are compared (Ellingson, Brent Smith, & Sackett, 2001). More importantly, however, Whitbourne and Waterman (1979) assessed the impact of socially desirable responding by correlating IPD stage scores with the Marlowe-Crowne (M-C) Social Desirability Scale in the 1977 follow-up. According to these researchers, correlations between the M-C social desirability scale and Stages 1-6 of the IPD ranged from .16 to .28 for college students and .05 to .20 for alumni, suggesting that the IPD is relatively insensitive to social desirable response bias. As a result, social desirability did not appear to significantly limit this investigation's findings.

Future Research

This study presents important findings on several key facets of Erikson's psychosocial crisis theory in particular and personality stability and change in general. It also provides information as to when personality change occurs and does not occur and whether change is related to ontogenetic development or environmental influences. Immediately apparent, however, is the need for future research examining the relationship between the IPD and trait measures of personality such as the NEO-PI-R. First, it would be instructive to compare the factor structures of the two measures to investigate the possibility that the IPD is tapping several facet scales of the NEO-PI.

Second, longitudinal and cross-sectional sequence studies could be conducted with the aim of comparing mean-level and rank-order consistency estimates for the two scales over time.

Although the IPD is not a trait based measure, it appears it may have something in common with trait measures. One of the criticisms of the trait approach is its lack of appreciation for context and life events (McAdams, 1994). A related criticism of the trait approach is its lack of process oriented mechanisms that adequately account for how personality changes and how people react to and influence their experiences in the world (Whitbourne, in press). A similar critique can be leveled against the present study. Indeed, it has little to say with respect to what processes people use to maintain stable personalities in adulthood. A productive next step would be to adopt a process oriented approach such as Whitbourne's (1996) identity process perspective. The incorporation of this perspective would allow for speculation regarding the ways in which psychosocial crises are resolved and incorporated into the self in the service of personality stability.

If the order of psychosocial stage resolution is not fixed, which the results of this study suggest, then psychosocial crisis resolution or movement through the stages is explicitly dependent on a person's life circumstances and the environmental influences acting on his or her life. Future research using the IPD should follow the work of Mroczek and Spiro (2001) in applying statistical techniques such as two-level growth curve modeling. The first level of this approach allows the researcher to assess interindividual differences in intraindividual change by estimating change trajectories for each person. The second level of this approach allows the researcher to build in, for example, life event variables that are theorized to account for individual differences in trajectories. It is apparent from the present study that polarizing adult personality development into the extremes of stability versus change is no longer useful. The appropriate question to ask is not whether a group of individuals changes or remains stable over time, or whether the relative ranking of individuals within a group remains consistent, but who changes and who remains stable and why.

APPENDIX A

STUDY TABLES

Table 1

Designs of Multivariate Analyses Comparing Ages and Cohorts

Analysis	Independent variables	Dependent variables	Ages compared
Longitudinal analysis, Cohort 1 1966-2000	Age-time	Stages 1-6	20, 31, 42, 54
Longitudinal analysis, Cohort 1 1977-2000	Age-time	Stages 1-8	31, 42, 54
Longitudinal analysis, Cohort 2 1977-2000	Age-time	Stages 1-8	20, 31, 42
Longitudinal analysis, Cohort 3 1988-2000	Age-time	Stages 1-8	20, 31
Cross-sectional analysis, 2000	Age-cohort	Stages 1-8	31, 42, 54
Time lag comparisons, all cohorts, age 31	Cohort-time	Stages 1-8	31
Time lag comparison, cohorts 1 and 2, age 42	Cohort –time	Stages 1-8	42
Cross-sequential, all cohorts, 1988-2000	Cohort-time × Time-age	Stages 1-8	42, 31, 20 54, 42, 31
Cohort sequential analysis Cohorts 1, 2, and 3	Age-time × Cohort-time	Stages 1-6	20-31
Cohort sequential analysis Cohorts 2 and 3	Age-time × Cohort-time	Stages 1-8	20-31
Cohort sequential analysis Cohorts 1 and 2	Age-time × Cohort-time	Stages 1-6	20-42
Cohort sequential analysis Cohorts 1 and 2	Age-time × Cohort-time	Stages 1-8	31-42

Table 2

Means and Standard Deviations of IPD Stage Scores by Cohort and Time of Testing

	Cohort 1				Cohort 2			Cohort 3	
Scale	1966	1977	1988	2000	1977	1988	2000	1988	2000
Stage 1									
M	9.77	10.94	11.48	12.68	9.95	11.80	11.78	9.61	12.39
SD	7.77	8.29	8.13	8.63	7.39	7.30	7.20	8.04	7.84
Stage 2									
M	8.22	8.15	8.94	9.47	7.21	7.69	7.43	6.76	7.48
SD	4.85	5.84	5.00	5.28	5.66	4.74	4.39	5.44	5.47
Stage 3									
M	10.53	11.01	12.64	10.58	10.80	12.31	11.34	10.62	12.35
SD	6.78	7.09	7.04	7.69	7.53	7.39	7.03	7.61	7.23
Stage 4									
M	6.53	13.58	16.52	15.76	9.30	14.92	16.59	9.42	14.96
SD	8.22	7.78	7.01	7.68	8.73	7.09	6.89	9.20	8.22
Stage 5									
M	7.38	9.71	10.39	11.03	7.40	9.74	10.82	7.32	10.47
SD	6.58	6.22	6.58	6.43	7.02	6.77	6.24	7.33	5.87
Stage 6									
M	10.98	13.12	13.32	13.69	12.00	14.24	16.19	11.57	13.75
SD	6.89	7.02	7.06	7.20	7.50	7.91	6.44	8.21	6.25
Stage 7									
M	—	8.90	9.58	8.27	7.51	9.03	9.84	6.95	8.71
SD	—	5.68	5.91	5.79	5.73	5.43	4.73	5.50	6.35
Stage 8									
M	—	7.74	3.85	5.35	5.71	2.67	2.90	2.35	4.73
SD	—	7.83	8.12	8.35	7.47	7.93	7.85	8.45	8.19
N	345	155	99	106	299	83	73	290	55

Table 3

Stability Coefficients for the IPD Across Ages Tested for Cohorts 1, 2, and 3

Stage	Cohort 1 (20-54)	Cohort 1 (20-42)	Cohort 1 (20-31)	Cohort 1 (31-54)	Cohort 1 (31-42)	Cohort 1 (42-54)	Cohort 2 (20-42)	Cohort 2 (20-31)	Cohort 2 (31-42)	Cohort 3 (20-31)
Stage 1	.43	.53	.62	.51	.64	.67	.17	.53	.59	.65
Stage 2	.29	.32	.52	.51	.34	.57	.27	.23	.46	.61
Stage 3	.47	.52	.49	.50	.44	.71	.23	.41	.60	.60
Stage 4	.43	.36	.42	.61	.48	.74	.39	.54	.58	.57
Stage 5	.44	.49	.46	.50	.48	.81	.30	.54	.63	.49
Stage 6	.44	.52	.48	.63	.66	.72	.30	.66	.69	.25
Stage 7	--	--	--	.45	.55	.53	.39	.51	.59	.58
Stage 8	--	--	--	.58	.64	.71	.36	.38	.49	.50
N	106	98	155	68	98	54	73	83	30	55
Range	.29-.47	.32-.53	.42-.62	.45-.63	.34-.66	.53-.81	.17-.39	.38-.66	.46-.59	.25-.65
Median	.43	.51	.48	.51	.52	.71	.30	.52	.59	.57

Table 4

Results of Multivariate Analyses Comparing Age, Cohort, and Time of Testing

Analysis	n	Wilks's Lambda	p
Longitudinal - Cohort 1 (1966-2000)			
Effect of age-time	54	.480	.0001
Longitudinal - Cohort 1 (1977-2000)			
Effect of age-time	54	.539	.0001
Longitudinal - Cohort 2 (1977-2000)			
Effect of age-time	30	.417	.0001
Longitudinal - Cohort 3 (1988-2000)			
Effect of age-time	55	.633	.004
Cross-sectional 2000			
Effect of age-cohort	234	.826	.0001
Time lag comparison, all cohorts, age 31			
Effect of gender	293	.924	.004
Effect of cohort-time	293	.788	.0001
Time lag comparison, Cohorts 1 and 2, age 42			
Effect of cohort-time	171	.894	.020
Cross-sequential, all cohorts, 1989-2000			
Effect of cohort-time	139	.668	.0001
Effect of time-age	139	.823	.001
Effect of cohort-time × time-age	139	.796	.018
Cohort sequential, all cohorts, ages 20 –31			
Effect of gender	292	.945	.013
Effects of cohort-time	292	.917	.017
Effects of age-time	292	.671	.0001

Continued next page

Table 4 Continued

Analysis	n	Wilks's Lambda	p
Cohort sequential, Cohorts 2 and 3, ages 20-31			
Effects of gender	137	.886	.047
Effects of age-time	137	.616	.0001
Cohort sequential, Cohorts 1 and 2, ages 20-42			
Effect of cohort-time	128	.887	.024
Effect of age-time	128	.664	.0001
Effect of age-time × cohort-time	128	.908	.021
Cohort sequential, Cohorts 1 and 2, ages 31-42,			
Effect of cohort-time	128	.750	.0001
Effect of age-time	128	.763	.0001
Effect of age-time × cohort-time	128	.848	.01

Note. Only significant main effects and interactions are reported.

Table 5

Univariate Fs and Significance of Age, Cohort, and Time of Testing Comparisons

Analysis	Stage 1	2	3	4	5	6	7	8
Longitudinal – Cohort 1 (1966-2000)								
Effect of age-time								
F (3,159)	3.356	3.077	3.013	34.15	2.405	2.401	--	--
p	.020	.029	.032	.0001	.07	.07	--	--
Longitudinal – Cohort 1 (1977-2000)								
Effect of age-time								
F (2,106)	3.842	4.517	3.292	6.757	1.039	1.638	1.405	7.520
p	.025	.013	.041	.002	.358	.199	.25	.001
Longitudinal – Cohort 2 (1977-2000)								
Effect of age-time								
F (2,58)	1.205	.128	1.388	7.791	1.324	2.701	.487	2.906
p	.307	.880	.258	.001	.274	.076	.617	.063
Longitudinal – Cohort 3 (1988-2000)								
Effect of age-time								
F (1,54)	5.447	.518	1.886	22.83	12.79	3.55	3.148	3.346
p	.023	.475	.175	.0001	.001	.065	.082	.073
Cross-sectional, all cohorts, 2000 testing								
Effect of age-cohort								
F (2,231)	.242	5.373	.766	.521	.099	2.569	1.249	2.278
p	.785	.005	.466	.595	.906	.079	.289	.105

Continued next page

Table 5 Continued

Analysis	Stage 1	2	3	4	5	6	7	8
Time lag, all cohorts, age 31								
Effect of gender								
F (1, 287)	.071	.224	.288	4.783	1.101	9.411	6.341	2.176
p	.790	.636	.592	.03	.295	.002	.012	.141
Effect of cohort-time								
F (1, 287)	.571	.880	1.056	1.342	.289	.872	.03	11.37
p	.566	.416	.349	.263	.749	.419	.97	.0001
Time lag, Cohorts 1 and 2, age 42								
Effect of cohort-time								
F (1, 169)	.045	3.644	1.262	.007	.109	5.164	.004	1.20
p	.833	.058	.263	.933	.741	.024	.951	.275
Cross-sequential, all cohorts, 1988-2000								
Effect of cohort-time								
F (2, 136)	2.03	5.937	1.04	6.439	1.779	2.732	2.068	3.30
p	.135	.003	.356	.002	.173	.069	.130	.040
Effect of time-age								
F (1, 136)	2.94	1.862	.644	14.47	7.142	1.40	.145	2.607
p	.089	.175	.424	.0001	.008	.238	.704	.10
Effect of cohort-time × time-age								
F (2, 136)	1.205	.011	3.763	10.65	4.80	1.613	2.75	.432
p	.30	.989	.026	.0001	.01	.203	.068	.650

Continued next page

Table 5 Continued

Analysis	Stage 1	2	3	4	5	6	7	8
Cohort-sequential, ages 20-31, all cohorts								
Effect of gender								
$\underline{F}$ (1, 288)	.063	.438	.256	4.71	.598	5.37	--	--
$\underline{p}$	.803	.509	.613	.031	.440	.021	--	--
Effect of cohort-time								
$\underline{F}$ (2, 288)	.095	1.775	.545	5.723	.014	1.00	--	--
$\underline{p}$	.909	.171	.581	.004	.986	.368	--	--
Effect of age-time								
$\underline{F}$ (1, 288)	15.42	.134	3.810	111.9	37.95	22.00	--	--
$\underline{p}$	.0001	.714	.052	.0001	.0001	.0001	--	--
Cohort sequential, ages 20-31, Cohorts 2 and 3								
Effect of gender								
$\underline{F}$ (1, 134)	.134	.223	.086	7.246	1.940	8.356	5.192	1.665
$\underline{p}$	.715	.638	.770	.008	.166	.004	.024	.199
Effect of age-time								
$\underline{F}$ (1, 134)	13.65	.160	3.77	52.35	24.63	11.99	6.73	.091
$\underline{p}$	.0001	.689	.054	.0001	.0001	.001	.011	.764
Cohort sequential, ages 20-42, Cohorts 1 and 2								
Effect of cohort-time								
$\underline{F}$ (1, 125)	037	3.64	.110	1.81	.080	4.90	--	--
$\underline{p}$	.848	.059	.741	.181	.777	.029	--	--

Continued next page

Table 5 Continued

	Stage							
Analysis	1	2	3	4	5	6	7	8
Effect of age-time								
F (2, 250)	2.23	1.167	.527	37.18	4.52	8.33	--	--
p	.110	.313	.591	.0001	.012	.0001	--	--
Effect of age-time × cohort-time								
F (2, 252)	.367	.165	4.219	3.512	.018	.363	--	--
p	.693	.848	.016	.031	.982	.696	--	--
Cohort sequential, ages 31-42, Cohorts 1 and 2								
Effect of cohort-time								
F (1, 125)	.004	3.21	1.32	.064	.105	4.563	.041	7.835
p	.949	.076	.253	.801	.746	.035	.840	.006
Effect of age-time								
F (1, 125)	.808	2.40	.613	9.575	1.06	.022	.498	7.369
p	.371	.124	.435	.002	.306	.883	.482	.008
Effect of age-time × cohort-time								
F (1, 125)	.116	.328	2.29	.043	.002	.821	.080	9.516
p	.734	.568	.132	.835	.962	.367	.778	.003

Note. Only significant main effects and interactions are reported.

APPENDIX B

STUDY FIGURES

Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7	Stage 8
							Ego Integrity vs. Despair
						Generativity vs. Stagnation	
					Intimacy vs. Isolation		
				Identity vs. Role Confusion			
			Industry vs. Inferiority				
		Initiative vs. Guilt					
	Autonomy vs. Shame, Doubt						
Basic Trust vs. Mistrust							

Figure 1. Erikson's (1963) epigenetic matrix including stage numbers and the psychosocial crises they represent.

Year of Testing

	1966	1977	1988	2000	
Age	20 N = 347	31 N = 155	42 N = 99	54 N = 106	Cohort 1
		20 N = 298	31 N = 83	42 N = 73	Cohort 2
			20 N = 292	32 N = 55	Cohort 3

Figure 2. Design of the present study.

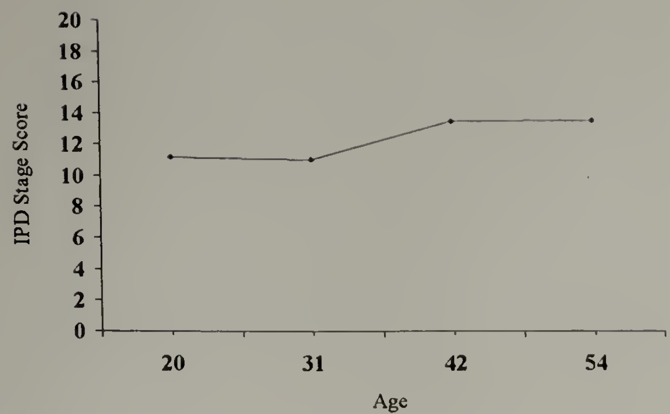

Figure 3. Cohort 1 means for Trust versus Mistrust on the IPD.

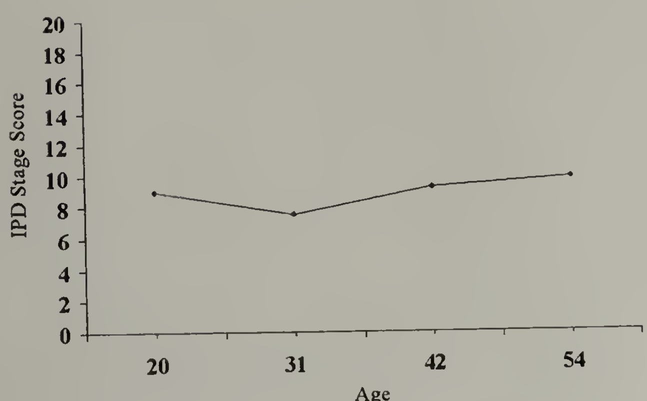

Figure 4. Cohort 1 means for Autonomy versus Shame and Doubt on the IPD.

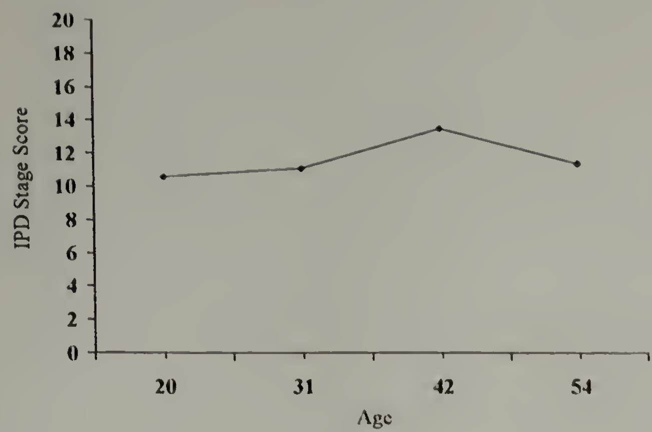

Figure 5. Cohort 1 means for Initiative versus Guilt on the IPD.

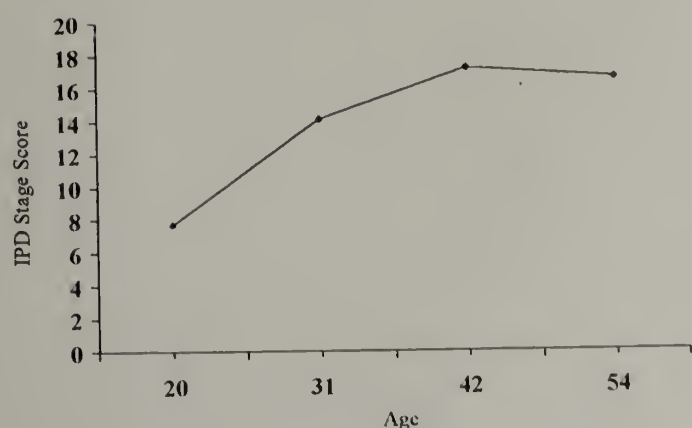

Figure 6. Cohort 1 means for Industry versus Inferiority on the IPD.

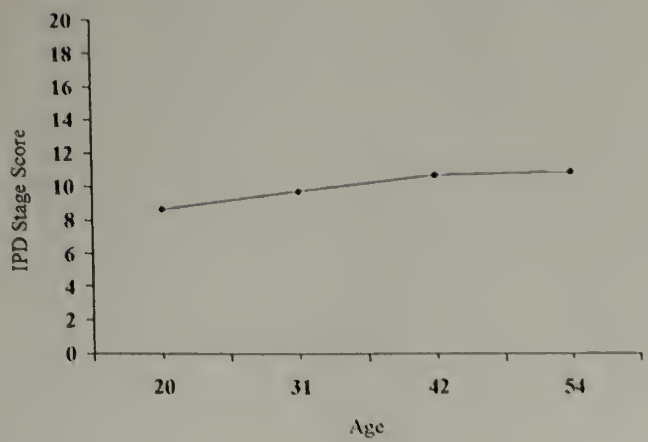

Figure 7. Cohort 1 means for Identity versus Identity Diffusion on the IPD.

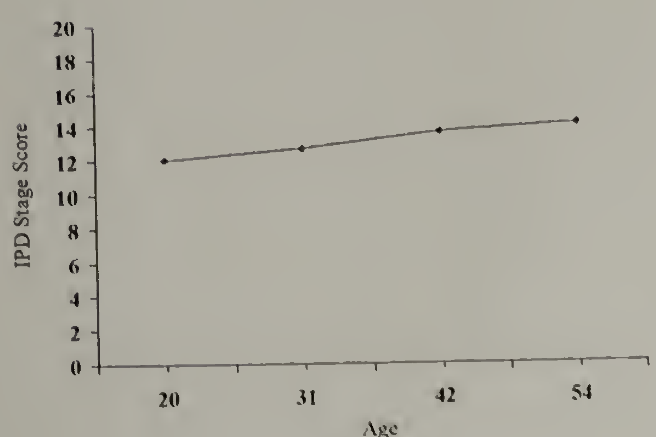

Figure 8. Cohort 1 means for Intimacy versus Isolation on the IPD.

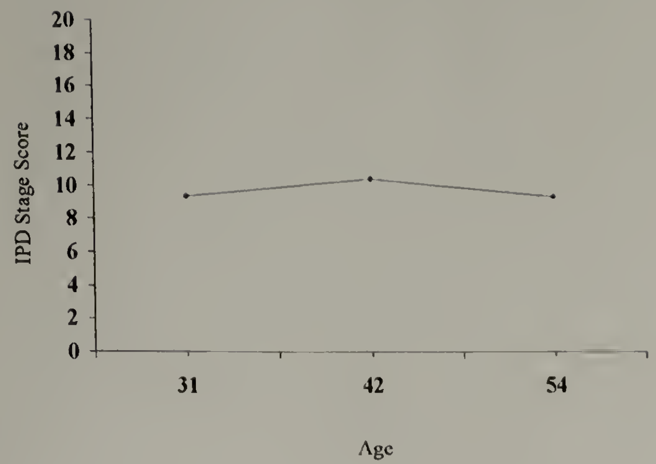

Figure 9. Cohort 1 means for Generativity versus Stagnation on the IPD.

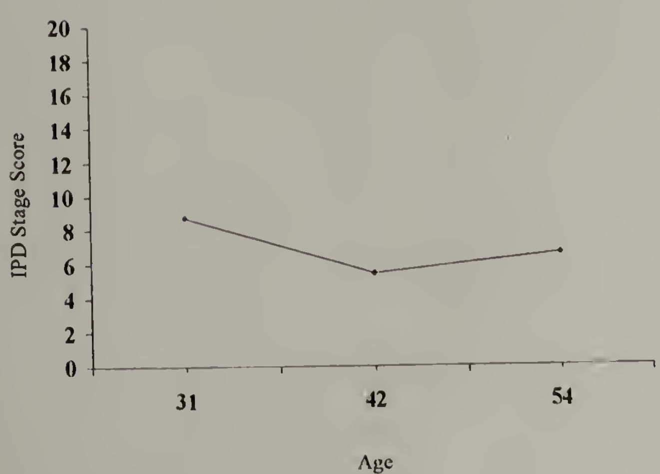

Figure 10. Cohort 1 means for Ego Integrity versus Despair on the IPD.

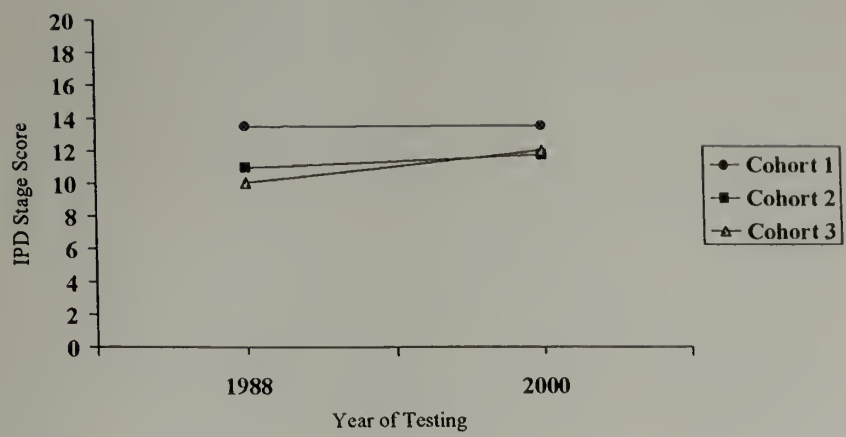

Figure 11. Trust versus Mistrust means on the IPD by cohort from 1988 to 2000.

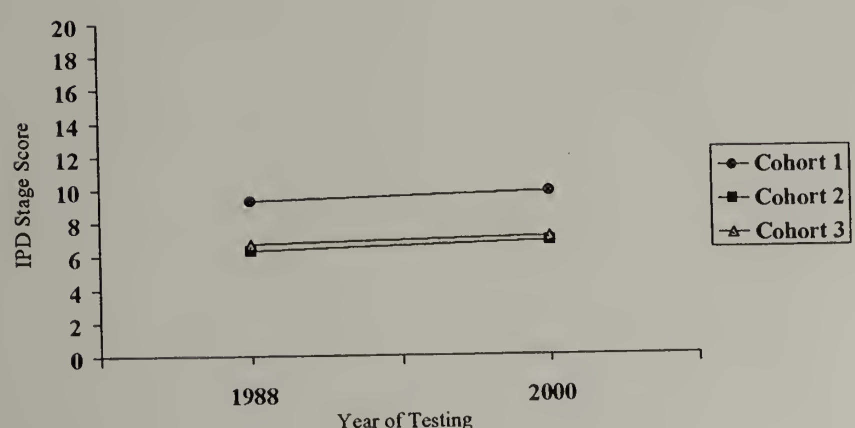

Figure 12. Autonomy versus Shame and Doubt means on the IPD by cohort from 1988 to 2000.

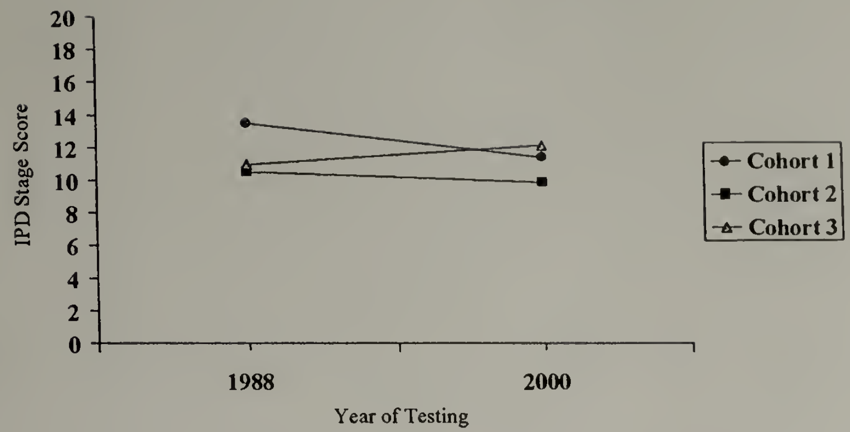

Figure 13. Initiative versus Guilt means on the IPD by cohort from 1988 to 2000.

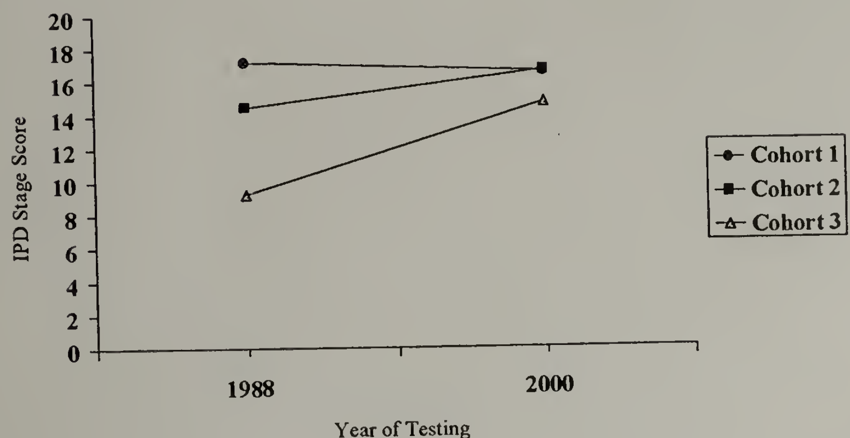

Figure 14. Industry versus Inferiority means on the IPD by cohort from 1988 to 2000.

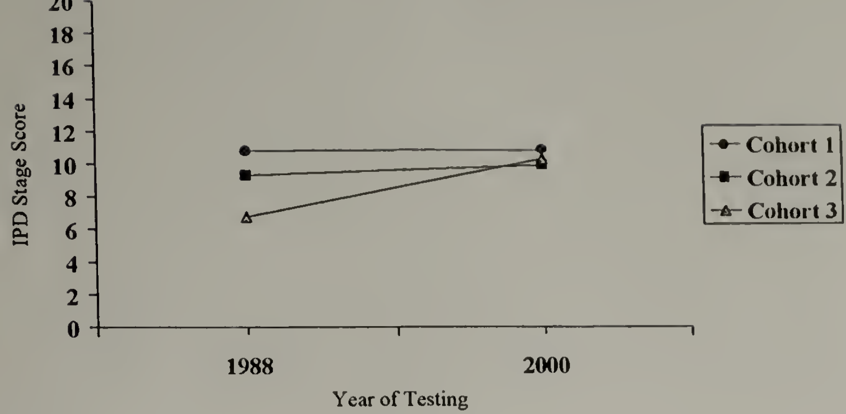

Figure 15. Identity versus Identity Diffusion means on the IPD by cohort from 1988 to 2000.

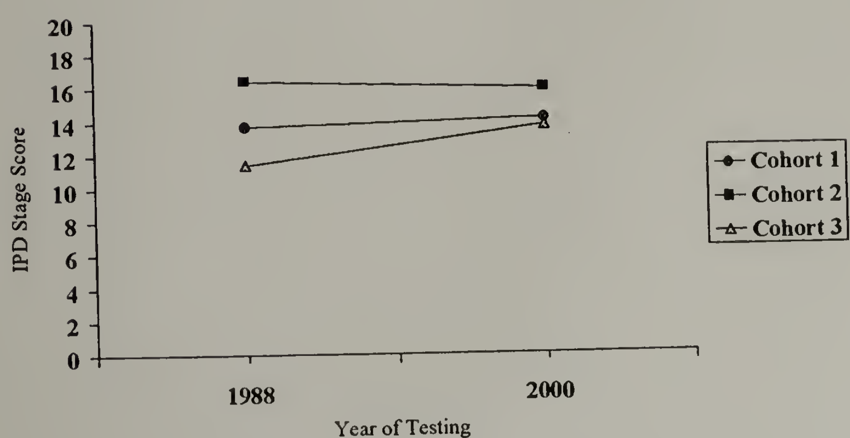

Figure 16. Intimacy versus Isolation means on the IPD by cohort from 1988 to 2000.

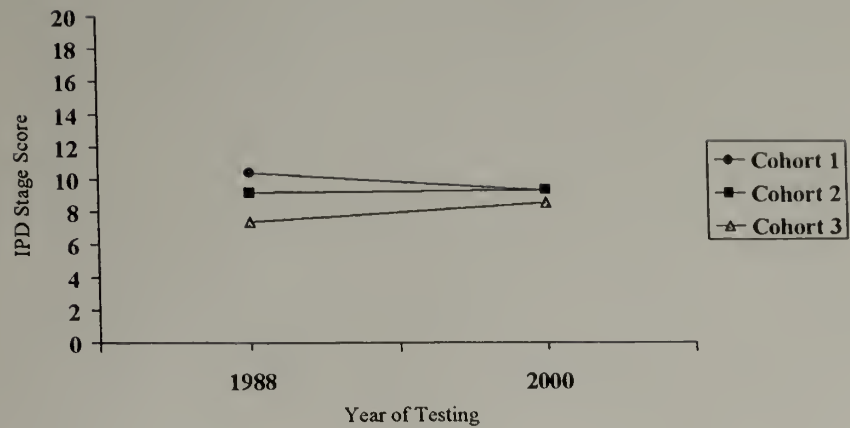

Figure 17. Generativity versus Stagnation means on the IPD by cohort from 1988 to 2000.

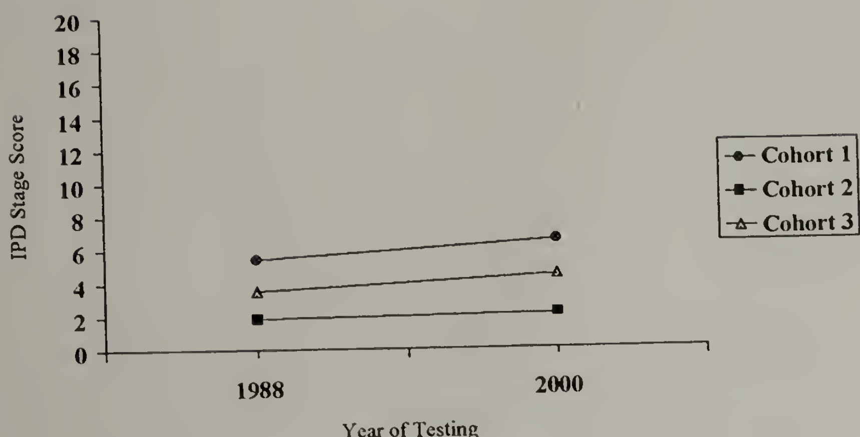

Figure 18. Ego Integrity versus Despair means on the IPD by cohort from 1988 to 2000.

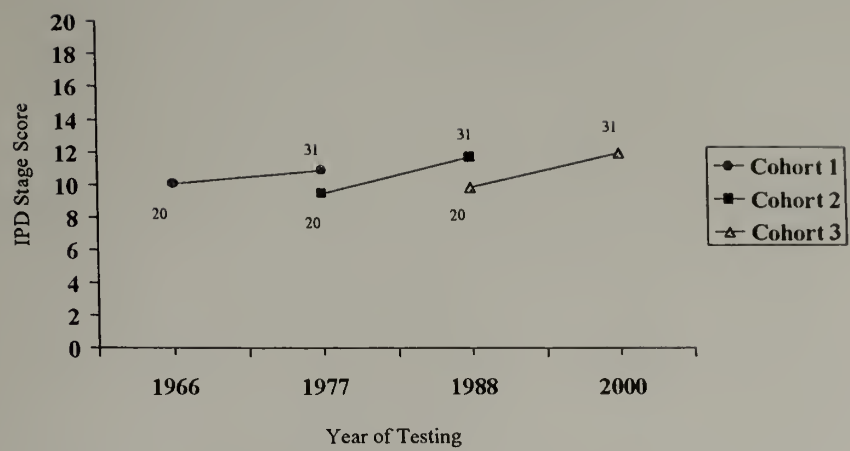

Figure 19. Trust versus Mistrust means by cohort and year of testing for ages 20 - 31 on the IPD. Age at time of testing indicated on figure.

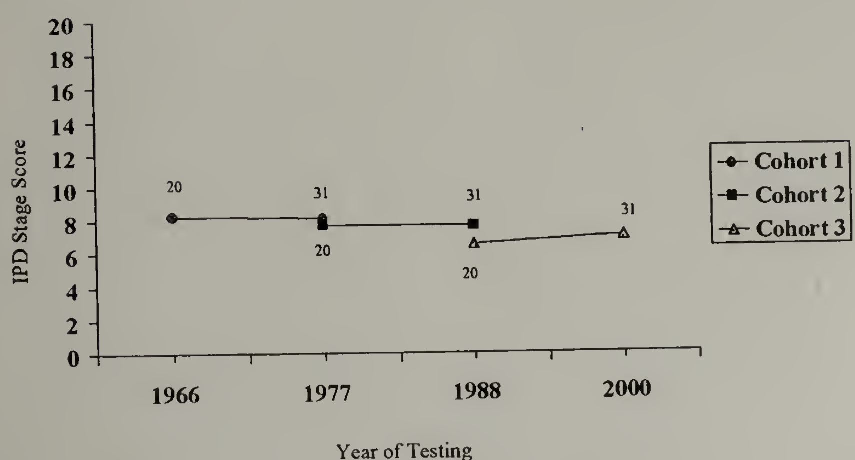

Figure 20. Autonomy versus Shame and Doubt means by cohort and year of testing for ages 20 - 31 on the IPD. Age at time of testing indicated on figure.

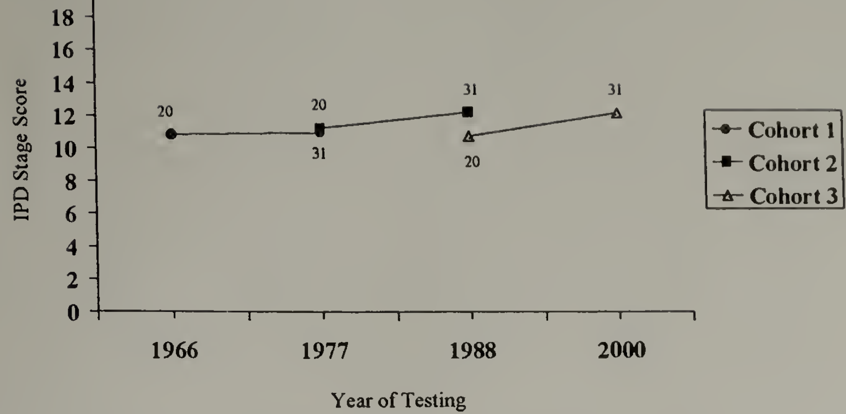

Figure 21. Initiative versus Guilt means by cohort and year of testing for ages 20 - 31 on the IPD. Age at time of testing indicated on figure.

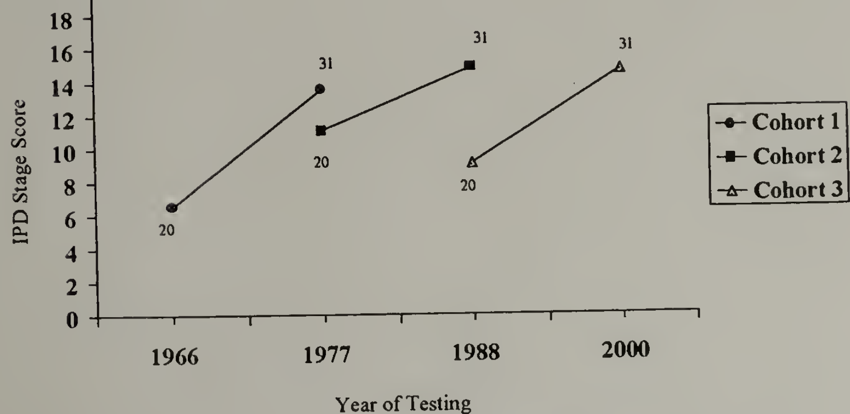

Figure 22. Industry versus Inferiority means by cohort and year of testing for ages 20 - 31 on the IPD. Age at time of testing indicated on figure.

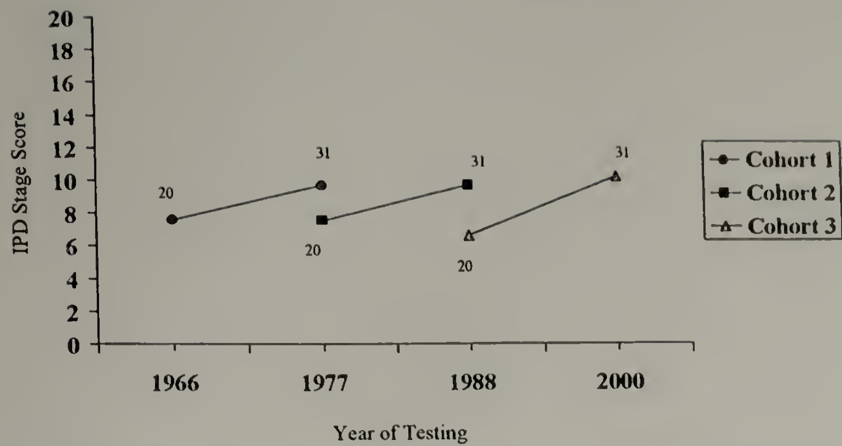

Figure 23. Identity versus Identity Diffusion means by cohort and year of testing for ages 20 - 31 on the IPD. Age at time of testing indicated on figure.

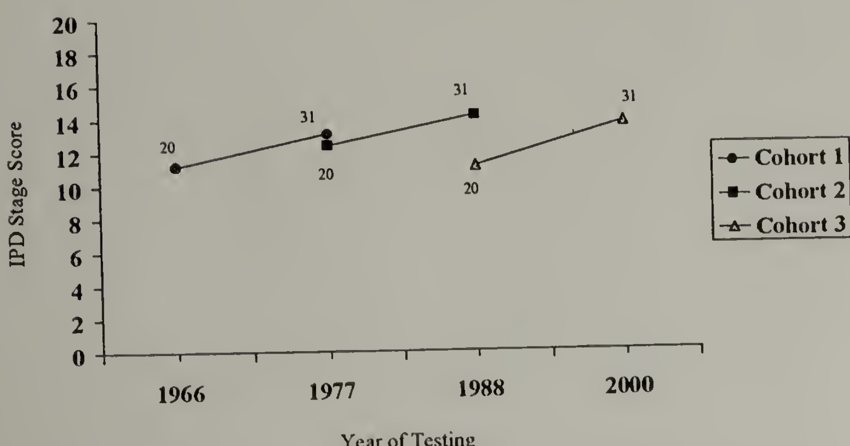

Figure 24. Intimacy versus Isolation means by cohort and year of testing for ages 20 - 31 on the IPD. Age at time of testing indicated on figure.

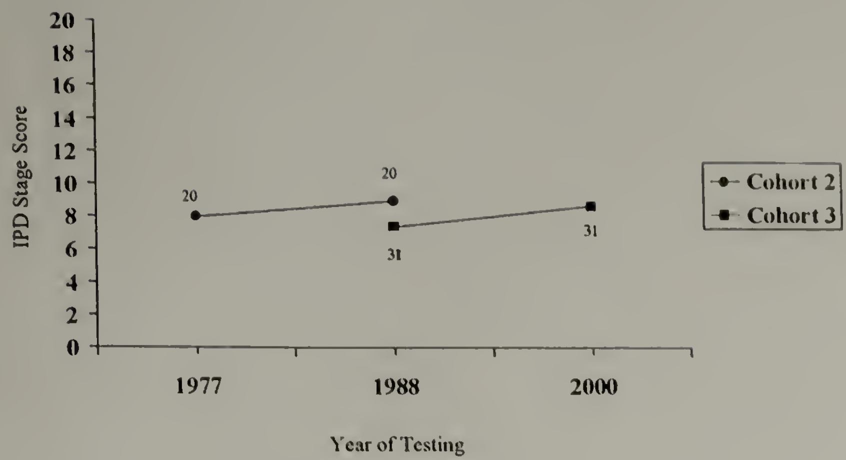

Figure 25. Generativity versus Stagnation means by cohort and year of testing for ages 20 - 31 on the IPD. Age at time of testing indicated on figure.

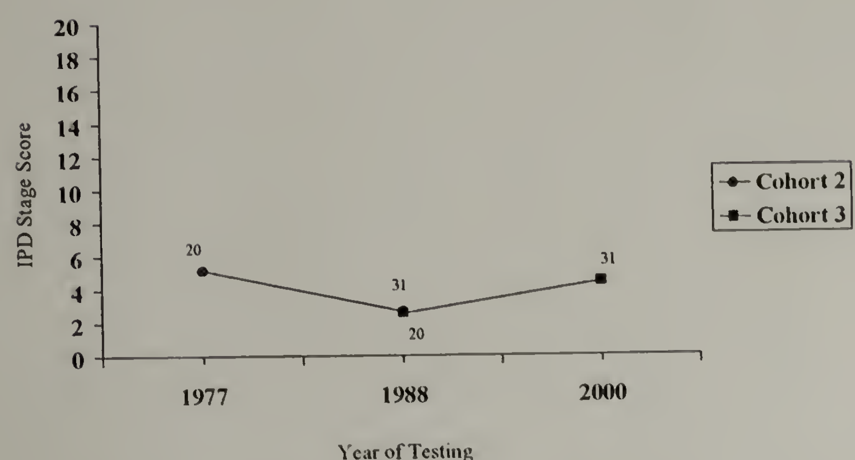

Figure 26. Ego Integrity versus Despair means by cohort and year of testing for ages 20 - 31 on the IPD. Age at time of testing indicated on figure.

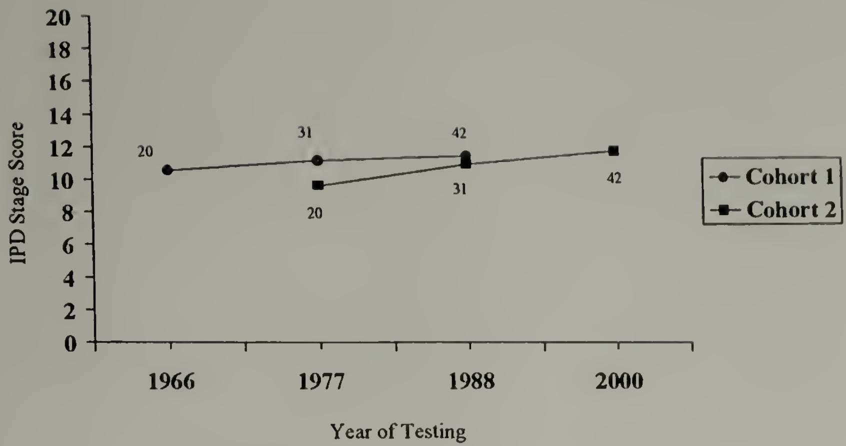

Figure 27. Trust versus Mistrust means on the IPD for Cohorts 1 and 2 for the age range 20-42. Age at time of testing indicated on figure.

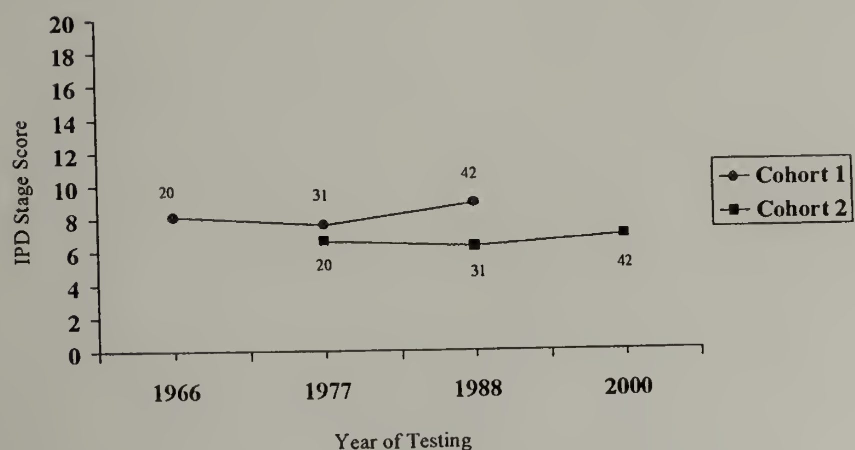

Figure 28. Autonomy versus Shame and Doubt means on the IPD for Cohorts 1 and 2 for the age range 20-42. Age at time of testing indicated on figure.

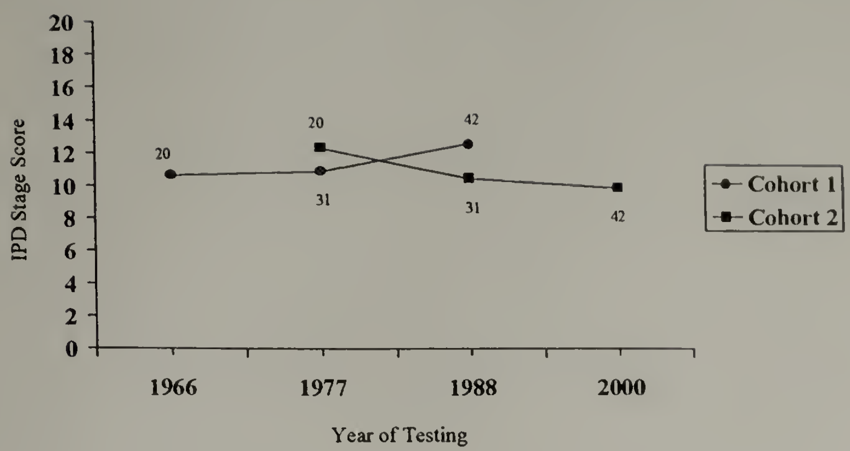

Figure 29. Initiative versus Guilt means on the IPD for Cohorts 1and 2 for the age range 20-42. Age at time of testing indicated on figure.

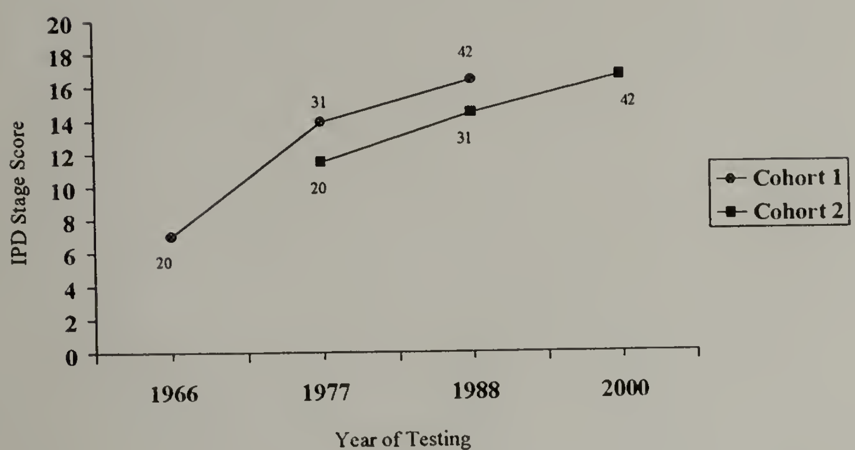

Figure 30. Industry versus Inferiority means on the IPD for Cohorts 1and 2 for the age range 20-42. Age at time of testing indicated on figure.

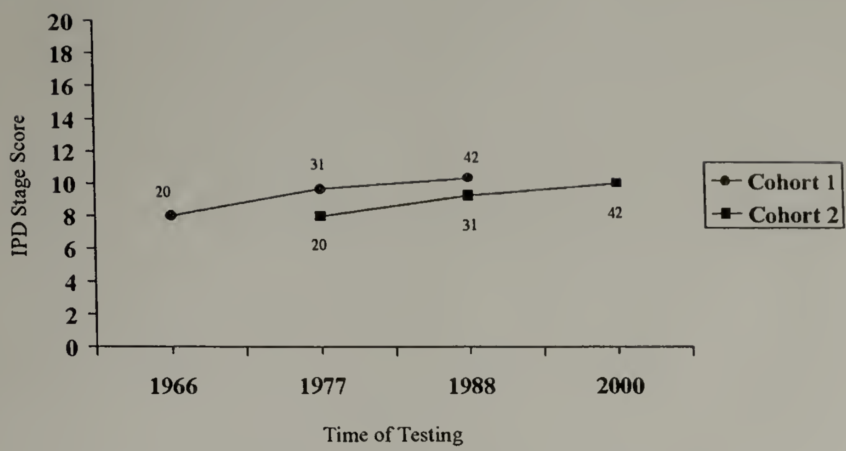

Figure 31. Identity versus Identity Diffusion means on the IPD for Cohorts 1and 2 for the age range 20-42. Age at time of testing indicated on figure.

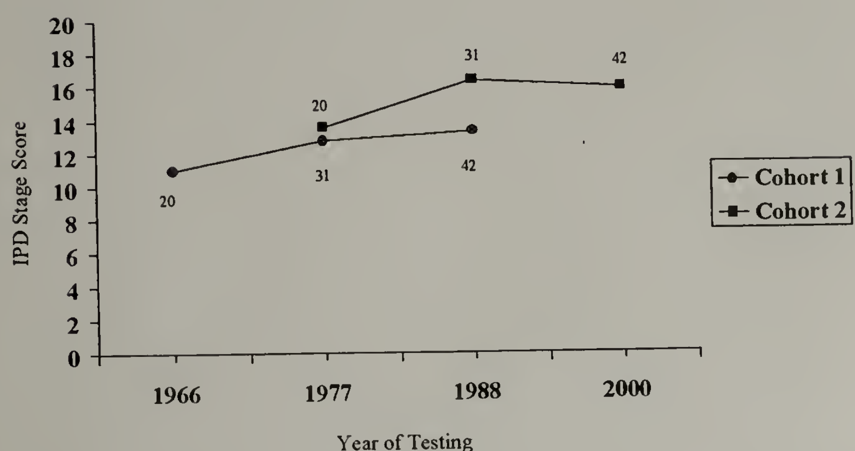

Figure 32. Intimacy versus Isolation means on the IPD for Cohorts 1and 2 for the age range 20-42. Age at time of testing indicated on figure.

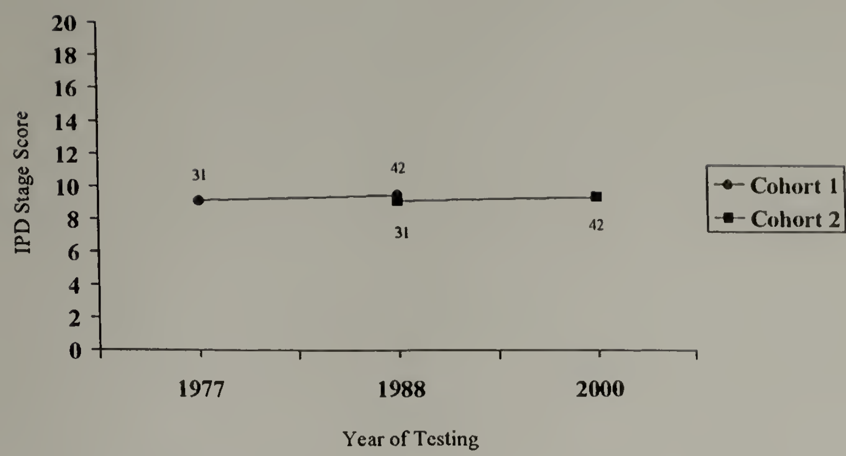

Figure 33. Generativity versus Stagnation means on the IPD for Cohorts 1 and 2 for the age range 31-42. Age at time of testing indicated on figure.

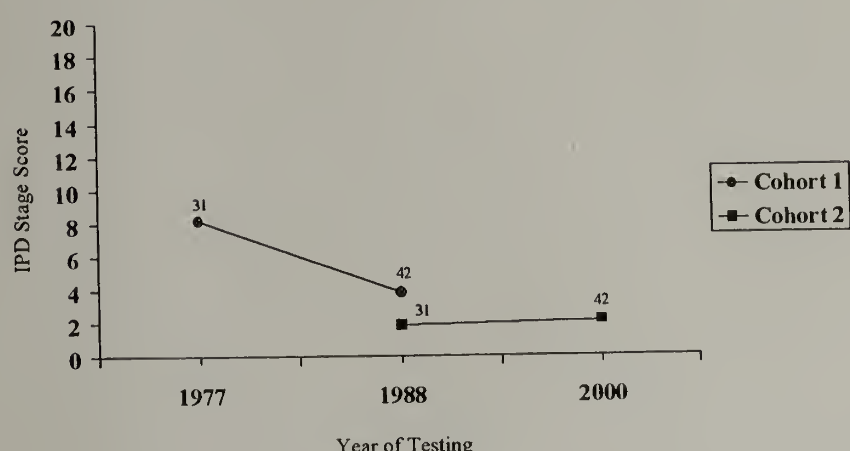

Figure 34. Ego Integrity versus Despair means on the IPD for Cohorts 1 and 2 for the age range 31-42. Age at time of testing indicated on figure.

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